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Management

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Policy re manuscripts: The object of Management METHODS is to offer "practical solutions to management's problems." For that reason we never highlight a problem without offering at least a partial solution or a recommended course of action. Whenever possible, we like to offer the reader something he can do right now to correct a procedure or solve a problem in his business.

Much of our editorial material comes from business and management specialists as well as from active businessmen at all levels of management.

Most articles employ case histories. An article may be based on a single case history or can be built around a group of related case histories. We like to mention the name of the user company involved in each case history and, when possible, to quote an officer of the company.

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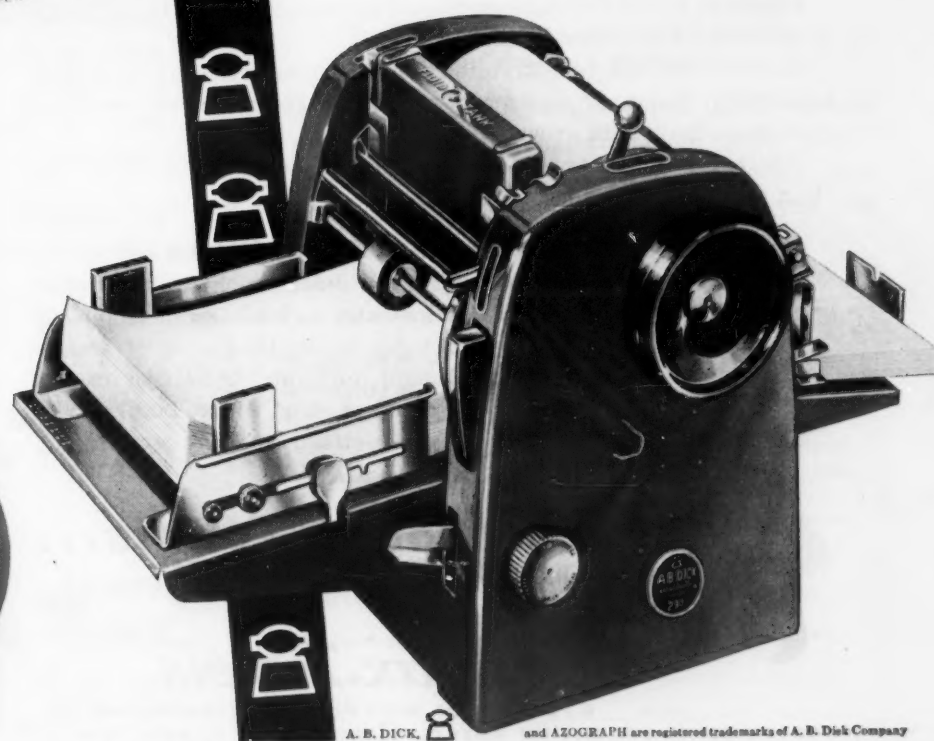
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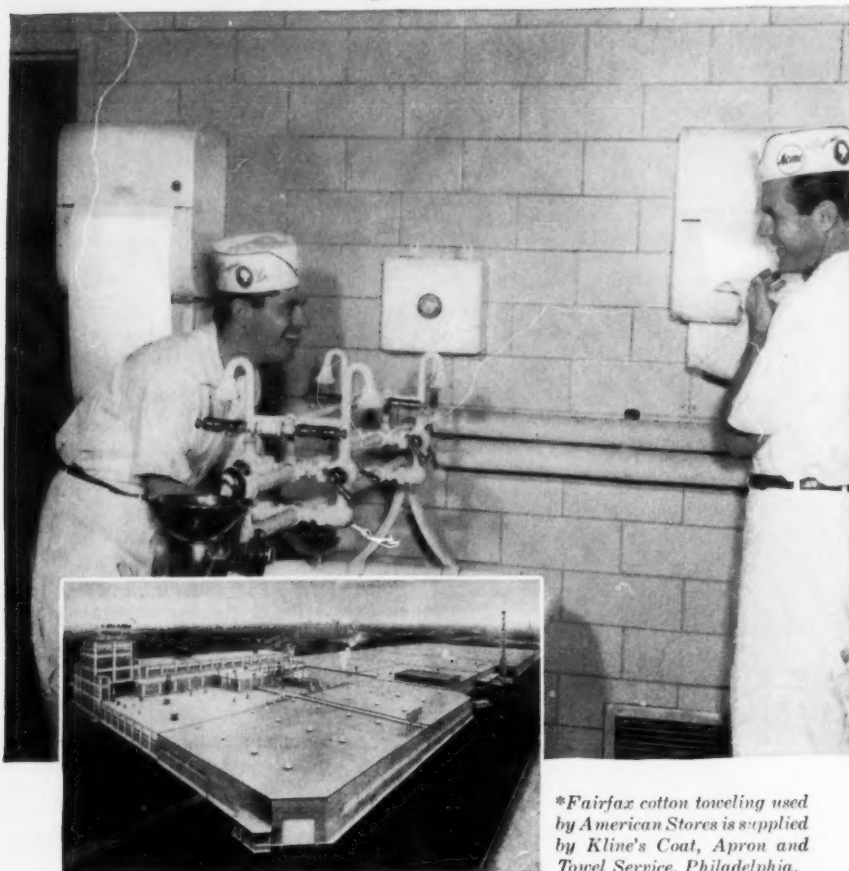
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Corporate accumulations

under the new revenue code

by Donald H. Gleason

General Tax Executive, Corn Products Refining Company, New York
From a talk before the American Management Association.

The "corporate accumulation" sections of the 1954 Revenue code and its predecessor revenue acts have a rather unique place in our tax structure. These sections were not designed to produce revenue of themselves, but to discourage procedures which reduce the revenue.

Income taxes imposed at the corporate level, and then again at the shareholders' level on distributed profits, are the nub of the problem. Difficulties in administration, and the resulting errors and inequities have arisen from the impossibility of formulating a precise test of what part of any given accumulation is for legitimate corporate purposes, and what part is for stockholders' purposes. As we have seen, the problem has become more acute at times of very high individual surtaxes, more particularly after the expiration of the corporation excess profits tax.

To evaluate the changes of law effected by the 1954 Revenue Code, it is well to review briefly the historical

development of the former provisions. Following the adoption of the Sixteenth Amendment, Congress, immediately recognizing the possibility of using corporations as devices for avoiding individual income taxes, provided, in the 1913 Revenue Act, that the individual owner's share of undistributed profits of corporations "... formed or fraudulently availed of ..." should be included in the individual's additional income tax computation.

The fact that a company was a mere holding company or that gains and profits "were permitted to accumulate beyond the reasonable needs of the business," was "prima-facie evidence of a fraudulent purpose ..." The statute left the decision of reasonableness to the opinion of the Secretary of the Treasury.

Aside from shifting the decision of reasonableness to the Commissioner in the 1916 Act, the first change appeared in the 1918 Act when the concept of fraud was eliminated because of the difficulty of securing evidence of fraud. The tax was shifted to the corporation by the 1921 Act and the rate set at 25%, later raised to 50% by the 1924 Act. The 1926 Act provided mechanism for the individual owner to pay the tax on his undistributed share of corporate accumulation on a consent dividend basis.

Due in large measure to the difficulties in proving the "purpose to avoid," the taxation of accumulations in personal holding companies, in which corporate purposes in the usual case are nil, was separated from the provisions covering other corporations and was made the automatic calculation

Some steps to take if you have corporate accumulation problems:

Keep your cash budgets on file.

Document the reason for small dividend distributions, if the reasons are favorable, in the Director's minutes.

Don't be loose about stockholders' loans.

Document your plans for business expansion, physical improvements, etc., in the Operating Committee minutes.

methods

tion that it is today by the 1934 Act. Provisions governing other than personal holding companies were set up in Section 102 and the rates were set at 25% on adjusted net income, up to \$100,000, and 35% on the excess.

Although Section 102 was disparaged as a useful weapon for preventing unwarranted accumulations by the President and various members of the legislative committees, the section was left unchanged by the 1936 Act except to reduce the rate for those companies also subject to the general undistributed profits tax enacted that year.

The Revenue Act of 1938 effected a most important amendment, one with which we are now particularly concerned. It is section 102(c) providing *Evidence Determinative of Purpose* which continued in exactly the same form through the life of the 1939 Code. The two much discussed changes in the 1954 code, that is, the one which shifts the burden, and the other which confines the penalty tax to the amount that is determined to be excessive, are not principally effected by amending the old provisions, but by adding rather complicated language.

In discussing the burden of proof let's refer back to the references in the law in respect of evidence, to wit: "the fact of the existence of a holding or investment company" has been in the law in substantially its present form since 1913 as it is continued in the new Code as Section 533(b). It has not been particularly controversial.

However, Section 102(c), added by the Revenue Act of 1938 and continued in the 1939 Code, has been very important. It states: "*Evidence Determinative of Purpose*. . . . The fact that the earnings or profits of a corporation are permitted to accumulate beyond the reasonable needs of the business, shall be determinative of the purpose to avoid surtax upon shareholders unless the corporation by the clear preponderance of the evidence shall prove to the contrary."

The purpose of that section is best set forth in this quotation from the 1938 Senate Finance Committee Reports: "Under the amendment, however, it is clear that an unreasonable

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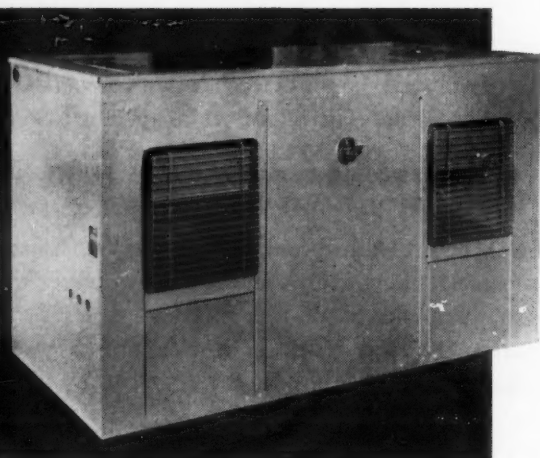
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accumulation puts upon the taxpayer the burden of proving by the clear preponderance of all, the evidence submitted that it did not have the purpose of avoidance."

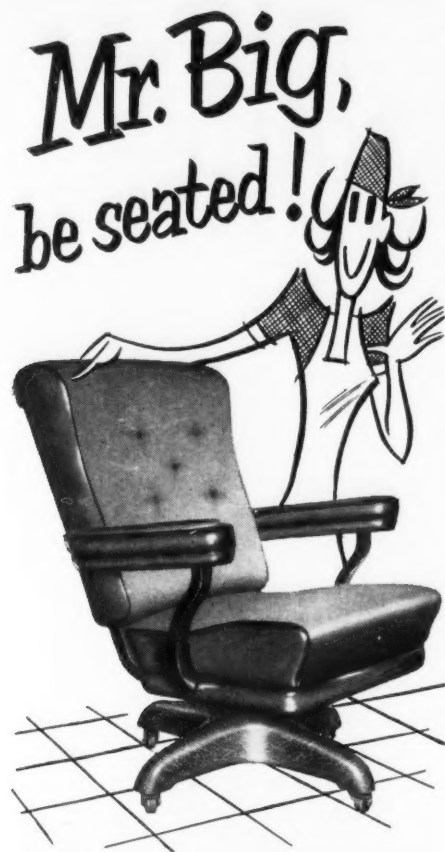
Although the number of cases involving the application of Section 102 is small, compared to the number of reporting corporations, its effect on corporation policy in respect of investments, distributions, mergers, and financing has been considerable. The exact language of 102(c) reappears as Section 533(a) in the new Code, except that the word "clear" before "preponderance of the evidence" is omitted. This omission (it was stricken from the House version of the Bill by the Senate) becomes significant only when Section 534 is referred to. Section 534 provides, in substance, that if, upon notice from the Secretary, the taxpayer has submitted statement of his purposes of accumulation along with a statement of sufficient facts showing the basis thereof, the burden of "coming forward with the evidence relating to purpose" is shifted to the Commissioner in a proceeding before the Tax Court. The Senate version (sustained by the Conference Committee) introduced the concept that the statement of purpose and sustaining related facts in some cases may support only part of the accumulation as being reasonable.

Correlating the calculation of the penalty tax to this concept, the Senate completely redrafted Section 535(c) which provides for final adjustment to year's taxable income on which the penalty tax, if any, is to be asserted. The final version allows for justifiable accumulations and also, in effect, for a \$60,000 accumulation which does not have to be justified. The \$60,000 does not reduce the exposure on each new accumulation, for it is offset by any carried over from a prior year.

As to the purpose of the shift of the burden of proof, the Committee reports cite the rather poor record by the Government in litigated cases and blame this on improper screening in the Bureau. They cite taxpayers' expense of sustaining the burden as well as using 102 as a threat by Revenue Agents to settle any other controversial issues.

The statement of purpose require-

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ment may well lead to a better screening of cases that actually get as far as the Tax Court, which should tend to improve the Government's batting average. The fact that the penalty tax is to be assessed on only the accumulated profits found to be excessive may, in marginal situations, also improve the Government's batting average, for Courts should be less reluctant to impose the tax on only such part of any accumulation as is found to be improper, than on the total of any given one, both proper and improper.

Taxpayer's position unchanged

As far as the nominal shift of the burden of proof itself is concerned, the taxpayer's position as a practical matter will, I believe, be much the same as it has been in prior years. The Government's case in any action will be formed around evidence adduced from Revenue Agent's examinations, and will be set up to rebut, "so to speak," the prior statement by the taxpayer of why his accumulations are not beyond the reasonable needs of the business. The taxpayer then, in order to prevail, must produce competent evidence, and the case should then be decided on the basis of the evidence of both sides.

The significance of the deleting of the word "clear" by the Senate from Section 533(a), immediately before the words, "preponderance of the evidence," isn't immediately apparent, because of the nature of the evidence upon which determinations as to the reasonableness must be made. It may affect where the line is drawn, in some cases where determinations must be made, as to what part of given accumulations is reasonable and what part is not.

Most corporate tax planners know whether they have a problem or not from the basic facts of the corporations with which they are concerned. It's unfortunate for some that the automatic exemption provided in the House version of the Bill for "Publicly Held" corporations was deleted, but perhaps those people can take heart from the complete rewriting of Subchapter C by the Senate Finance Committee, under which the tax restrictions on mergers and liquidations are rather less stringent than under the House version of the Bill. m/m

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case histories FOR SALES MANAGEMENT



by Charles S. Roberts
Charles Roberts Associates

Mr. Roberts is a management consultant who has specialized in marketing research and sales management problems since 1945.

How to change to sales incentive compensation from a salary plan

The practice of paying salesmen on a straight salary basis, and using the year-end bonus as a way to reward the better salesmen, usually creates more problems than it solves. The better-than-average salesman frequently feels that his better sales performance goes unrecognized, and that he does not receive his just rewards.

The poorer salesman is content to go along with such a plan, and there is no constant stimulus for him to do better. The stimulation of the occasional pep talks he receives quickly peters out and he falls right back in the same old rut.

The sales manager annually finds himself faced by the dilemma of dividing the bonus fund among his men in such a way as to keep them all happy. Extraneous factors come into play, and he frequently ends up with a division of the bonus fund which he would find hard to justify either to the sales-

men or to his management. The better salesmen may end up in a disgruntled frame of mind, and the poorer salesmen may take heart that their past performance is really acceptable despite past pep talks.

Broadly speaking, sales incentive compensation plans are most often designed to:

1. Encourage the salesmen to push the sale of the more profitable items or products in the line.
2. Compensate salesmen for following the directives of management in regard to a program of sales strategy, e.g., opening new accounts, more calls per day, selective account selling, and increased sales volume.
3. Provide management with a factual basis for paying salesmen which can be justified, and which gives management a realistic measure in determining which are the good, poor, and mediocre salesmen.

methods

Obviously, the more control of a salesman's activities that a management tries to achieve through the compensation plan, the more complicated the plan may become. Companies with no experience with incentive compensation plans tend to shy away from such plans. They may consider such plans too complicated, and they have neither the detailed sales plan nor the administrative facilities and records to derive full benefit from a complex, sales incentive, compensation plan.

Some benefits from change-over

A recent experience may be of value to show how a company realized important benefits by changing from a salary to an incentive plan without using a plan that was too unwieldy. This company's sales area included the Middle Atlantic and East North Central States, which it covered with 21 salesmen who produced approximately \$3,000,000 in sales annually. The character of the business was such that the company had to limit its sales activities to this area because of freight considerations, and any increase in sales volume had to come from more aggressive selling in this area. Salesmen received a salary, individually negotiated, and reimbursement of all expenses.

When the company made a profit, it set up a bonus fund which was disbursed by the sales manager on a judgment basis. There was substantial variation in the sales productivity among the salesmen. Yet, although salaries paid to the men varied also, the ratios of *cost to sales produced* of individual salesmen revealed that the direct selling costs of better men were only 4% to 6% of the sales they were producing, whereas the poorer salesmen were costing the company as much as 35% and 40%.

Inasmuch as neither the management nor the men had any experience with a sales incentive compensation plan, it was decided that the new plan should be readily understandable, simple to administrate, and should place all salesmen on the same basis. The plan finally adopted had the following features:

1. A quota for each salesman was established, based on a 5% direct

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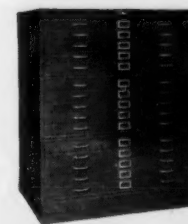
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selling cost. Thus, if a salesman was receiving \$7,000 in salary, and annual expenses amounted to \$3,000, the sum of the two (\$10,000) is multiplied by 20, to arrive at a quota for the salesman of \$200,000. The quota must be of a reasonable proportion of the territory potential if it is to be attainable. Otherwise the territory must be revised.

2. Sales in excess of quota were commissionable at 2%. No sliding scale was introduced, and the salesmen reacted favorably that no limitation was set on their earning potential.

3. The quota was divided by twelve, and the commissions earned, if any, were calculated monthly. One-half of the commissions earned was paid immediately, the other half was held in a reserve account to offset months in which quota was not attained. At year end, the commissions in the reserve accounts were paid to the salesmen in a lump sum.

Given a year to upgrade sales

In order to make the transition smoothly from a salary basis to an incentive basis, salesmen producing sales below quota during the first year were not penalized. However, their monthly statements showed, as a subsidy, the excess of what they received in salary and expenses over what they earned (5% of sales). In this way, below-par men were given a year to upgrade their sales performance to where they could operate without a subsidy. The implication, naturally, was that if a man was not earning his own way after a year under this plan, then his salary would have to be brought in line, or the company would have to replace him.

As might be expected, a number of the salesmen did not make the grade and had to be replaced. On the other hand, the increase in sales volume of many of the better salesmen was substantial *as a result of the opportunity for increased earnings*. At the end of three years of operation, the company reported that its direct selling cost had been reduced from 7.6% to 4.1%. During the same period, sales had almost doubled. Thus, both management and salesmen gained by the adoption of the incentive compensation plan. m/m

methods

methods

asks the

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THIS MONTH'S EXPERT



Harry B. Wissmann

Arthur D. Little, Inc.
Cambridge, Massachusetts

Mr. Wissmann is a graduate of the University of Illinois and the Harvard Graduate School of Business Administration. He has been associated, since 1931, with Arthur D. Little, Inc., a widely diversified consulting industrial research company, serving clients throughout the world. He took a leave of absence for 3½ years to serve with the War Production Board and with the Chemical Warfare Service.

Since 1949, Mr. Wissmann has headed Arthur D. Little's new Operations Research Group, engaged in the application of scientific methods used in physical research, to studies of industrial operations. Their objective: to provide a quantitative basis for executive decision.

A new aid for management

OPERATIONS RESEARCH

*How it solves such varied problems as
production scheduling
cost-quality balance
location of distribution facilities*

A new kind of applied science called "operations research" has, in the past few years, helped companies in many branches of business and industry to reach sound solutions to some of their most difficult operating problems. Operations research has been able to set up minimum-cost production schedules in the face of fluctuating market conditions. It has helped to establish inventory levels which provide the best balance among production costs, customer service, and capital investment. It has analyzed processing methods in order to reduce the amount of scrap and waste, and it has even been able to direct salesmen to the right accounts at the right time.

The purpose of this article is to describe operations research—what it is and how it works—and to discuss some of its implications for business and industry. Briefly, operations research is the use of methods of scientific research to study operating problems. Its purpose is to provide management with precise, quantitative information as a basis for making sound decisions about its operations.

Most industrial operations involve a large number of variable factors whose relationship to one another cannot be easily determined. Management is constantly faced with making major policy decisions about such operations without any accurate means of predicting the outcome of its decisions in quantitative terms. As a result, decisions are often based upon rough estimates or rule-of-thumb judgments, or on a partial understanding of the critical facts.

Operations research tries to provide a more accurate basis for executive decision by using the methods of the research scientist and the tools of the mathematician to locate the relevant factors of an operation, to find ways to isolate and measure them, and to establish explicit quantitative relationships among them in order to predict the outcome of alternate policies.

Although engineers and other specialists have contributed much to management's control over its operations, through such techniques as time and motion study, market research, and quality control, operations research can be distinguished from these established services in several ways:

1. Its object is the study of operations *as a whole*, that is, the use by management of men, machines, and technical processes *in combination* to manufacture goods or to provide services which are profitable.
2. It is based upon the fact that the behavior of large numbers of people and equipment, carrying out complex operations, can be analyzed by the methods of science, and that the knowledge gained from this analysis can be used to control the operation.
3. It uses the advanced methods of laboratory science and mathematical analysis. These non-standard methods enable the operations research scientists to isolate critical factors from masses of unwieldy data, to measure factors often considered intangible, and to describe complex interrelationships among variables.
4. Its key personnel are trained scientists and mathematicians, who are usually *not* experts in the problem under study. Their task is to discover how things behave rather than to apply existing knowledge.

tists and mathematicians, who are usually *not* experts in the problem under study. Their task is to discover how things behave rather than to apply existing knowledge.

How it began

Although there were a few industrial research projects similar to operations research before World War II, its real beginning was during the war. Preparing for the Battle of Britain, when new weapons were not to be had, groups of scientists were assembled to use their research skills in an attempt to improve the efficiency of existing weapons. Pooling their specialized knowledge, these scientists began to work on a variety of problems with results that were little short of spectacular.

They redesigned the British radar warning network; they devised a new ratio between flying time and repair time for interceptor planes; they determined the most efficient convoy size to minimize the loss of merchant shipping; they were able, by use of the laws of probability and game theory, to devise tactics which led to the practical elimination of the serious menace from enemy submarines operating out of the Bay of Biscay; and they calculated the amount of material needed for complex assault operations.

How it works

An operations research team ordinarily consists of one or more physical scientists, mathematicians, or experts in statistical analysis, and usually a

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specialist who is familiar with the technical aspects of the problem.

The first step in the study of an operation is the selection of a clear and well-defined goal which can be used as a measure of its effectiveness. In industry this goal can usually be stated in such terms as net profit, rate of return on investment, or rate of production.

One of the most useful features of operations research is that it often brings to light inconsistent management goals or the lack of any clearly defined goal. In production scheduling, for example, the goal is often stated as meeting market forecasts with minimum production and inventory costs, and without customer service failure. However, minimum inventory levels mean costly start-and-stop production schedules, while eliminating the risk of service failure means excessive inventories. Such inconsistent goals, which promote the efficiency of one department of a company at the expense of all the others, must be combined and integrated into an over-all company goal, such as net profit or return on invested capital.

The second step is to describe how an operation works. This involves, first, gathering all the essential data and isolating and measuring the critical factors. Second, it involves the construction of a simplified representation called a "model" of the operation.

The last point should be examined carefully, since the term "model" is of crucial importance in operations research. Most of the creative efforts of the operations research scientists are centered in constructing a model.

It should be pointed out that this is a scientific term used to describe the basic mechanism of things in nature. Once a scientist knows this mechanism, he can predict how things will react under any given set of circumstances. Since useful scientific predictions must be stated in the form of quantities (as in a chemical formula), a model usually takes the form of a mathematical formula.

Now, let's return to business operations. A businessman looks at an operation like Production as a means of converting materials into finished goods at a profit. To determine whether the operation is profitable, he adds up the

methods

costs involved and subtracts this sum from the selling price. The operation may be interpreted as a set of costs which are related to the final outcome—which is the profit. These figures become a simple model of the essential aspects relating to profit of the operation. An accounting system, in similar fashion, is a complex model of the flow of goods and money through a business enterprise.

The operations research scientist draws up a similar set of figures to relate, say, costs to profit. But he is interested primarily in these figures as a clue to the mechanism, or behavior, of the operation. He wants to know, in other words, whether it is possible to state the relation between costs and profit *in such a way that when any of the cost factors are changed the resulting profit can be predicted.* Useful predictions can be made only if the relationships between the essential elements, the quantities or the costs, can be represented or duplicated in mathematical form.

Most business operations are extremely complex; they contain a number of variable factors whose relation to the outcome is not altogether clear. They may also contain an element of chance—random factors which cannot easily be pinned down. Operations research uses complex mathematical models to describe these variables or define the chance factors. Once the model is constructed, the scientist is in a position—again, putting it very simply—to find out which combination of cost factors will eventually result in the greatest profit.

Not all operations research models are entirely mathematical in form. Sometimes it is more consistent to

represent the repetitive steps of an operation on punched cards, which can be processed on regular tabulating equipment, to simulate the behavior of the business operation under different circumstances.

To be useful, a model must express precise relationships; all the essential factors must be stated in quantitative terms. Without such data, the model will not have any practical dollars-and-cents value. However, many essential factors which may appear to be intangible may be given approximate numerical values. In some operations, where there is a large element of uncertainty, probability theory enables the research team to describe the effects of chance variation. Thus, when market conditions are erratic, or when a machine is subject to unpredictable variations in performance, a probabilistic model defines the pattern of these variations so that management can formulate policies to minimize the risk.

The accuracy of the model, the extent to which it represents the operation, can be checked by experiment. The results obtained from the model are compared with the performance of the operation under varying sets of conditions to determine whether the model will produce actual results. If necessary, the model is adjusted in accordance with additional data.

The third step in the manipulation of the model is to determine the effect of the proposed changes in the operation or the optimum levels at which the operation should be carried out. Here the model is an experimental tool; it can be subjected to numerous closely-controlled experiments which, in the actual operation, would be impossible or time-consuming.

OPERATIONS RESEARCH: case histories

Operations research can be described best in terms of actual case histories. The following examples, drawn from the files of the Operations Research Group at Arthur D. Little, Inc., have been selected to illustrate typical industrial applications. They will also give a clearer picture of the approach, the techniques, and the value of the

conclusions reached in an operations research study.

Production scheduling

A problem frequently encountered in the processing industries is planning production to meet fluctuating sales at minimum cost. The following case illustrates how operations research at-

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tacks such problems in planning.

A manufacturer of a wide line of products scheduled production on the basis of a sales forecast. To minimize overtime and labor turnover, production was kept at a fairly uniform level throughout the year; severe seasonal variations in sales were met out of inventories. This program suited both the production manager, because his costs were low, and the sales manager, because he could always meet customer demands. However, the treasurer was disturbed by the amount of capital tied up in inventory. Savings were thought possible, but the larger number of different products and the difficulty of determining proper costs made the problem too unwieldy to be solved by ordinary methods.

An operations research group studied a small part of the total operation, a division producing seven lines of products. Their aim was to reduce the total cost of production scheduling.

A model of the operation was constructed in the form of a system of mathematical equations which expressed the total costs of production, the cost of stocking in inventory, and the cost of back orders for each item, as well as restrictions on capacities of

equipment. Using methods of linear programming to manipulate this model, a production schedule yielding the lowest possible total cost on all seven items was obtained.

In order to construct and test out this model, the operations research analysts had to determine costs for a number of factors—some much less immediately tangible than financial records—relating to the time when the goods were produced. These included the costs of hiring and training new workers, the additional cost of overtime, the cost of carrying one unit of production for one month in inventory, and the cost of delayed or unfilled orders. This last cost was estimated by finding the monetary values that the company had unconsciously placed upon back orders in previous production schedules, and then, after bringing them into the open, adjusting them to more appropriate levels.

In the production schedule devised by the operations research group, inventory and overtime costs were 44% of such costs in the previous schedule. It is worth noting that in order to reduce the total costs associated with scheduling, it was necessary to increase substantially the amount of overtime

PRODUCTION SCHEDULING TO MEET FLUCTUATING SALES

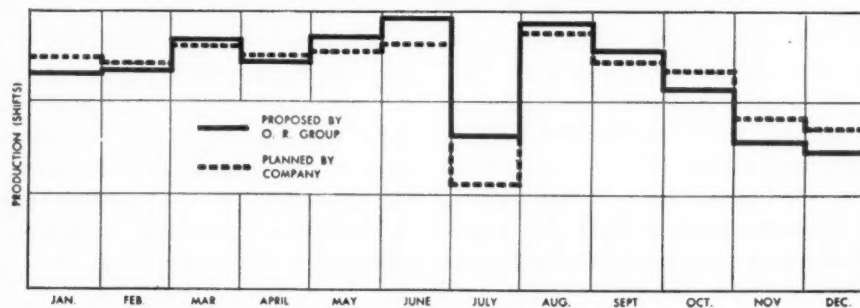


Fig. 1 PRODUCTION SCHEDULES.

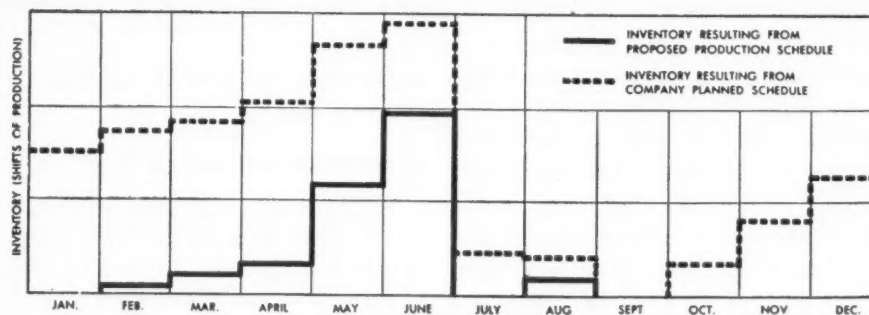


Fig. 2 MONTH-END INVENTORY.

in the new schedule. A simple method for extending minimum cost scheduling to all production divisions was devised, as were methods to adjust schedules to changes in costs.

Scheduling problems become more complex when many items are produced on a single assembly line and frequent changes-over have to be made. This not only introduces another cost factor which must be considered, but it makes the design of a minimum cost scheduling system somewhat more difficult. A technique known as *linear programming* often provides the best basis for a schedule which will minimize the total of inventory and change-over costs. This method, however, requires extensive arithmetical calculation and is not suitable for routine use in production planning, particularly when changing sales patterns require fairly frequent redesign of the schedule. A simple and rapid card method has been devised which gives almost as good scheduling as linear programming. With a deck of cards, one for each production shift of each model required to meet the sales forecast, a schedule can be designed, inventories and changes-over computed, and back order danger spots will be revealed.

Another complication in scheduling arises when variations in sales cannot be forecast with reasonable accuracy. However, probability theory and other mathematical techniques enable operations research teams to describe such variations accurately enough for purposes of planning production. In one recent case where sales were dependent on weather conditions, the firm's own operations research group used probability theory together with an analysis of the reliability of long-range weather forecasts to develop a production and distribution schedule. This schedule not only minimized losses due to weather variations, but also allowed the firm to make the best use of production and distribution facilities.

Cost-quality balance studies

Operations research studies an operation, not in isolation, but as an integral part of a chain or fabric of operations. In the following case history our operations research group, in the

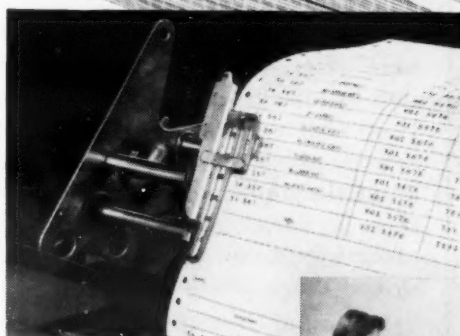
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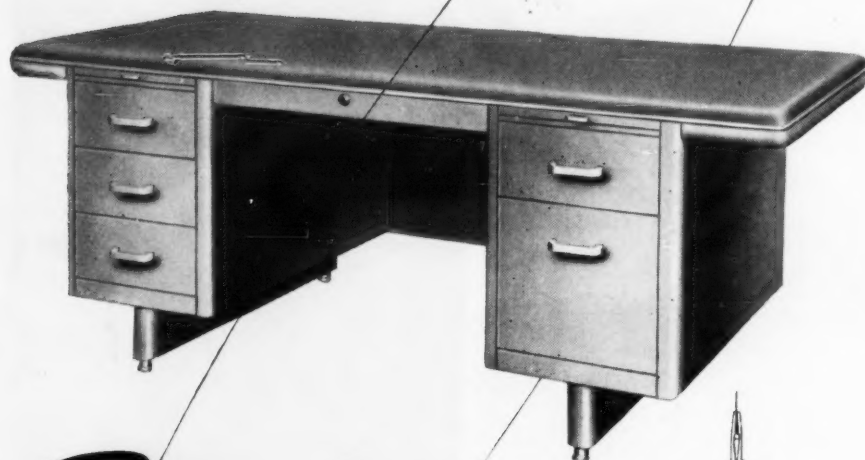
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course of an investigation of one step in a manufacturing process, was able to show how unsuspected details in this step affected costs in the entire operation. To protect confidences, this case history has been paraphrased in terms of wire rope; although almost any product with several successive manufacturing steps could be used for purposes of illustration.

The production of wire rope at minimum cost to meet strict specifications requires close control of a long sequence of operations. An important step occurs in the middle of this process: drawing steel rods down to wire of a specified gauge. The Operations Research Group of Arthur D. Little, Inc., was initially asked by the manufacturer to determine the most profitable speed at which to draw wire. Its first problem was to define a measure of effectiveness for the operation. This required precise measurements of the effect of drawing speeds on subsequent steps.

In general, the effect of faster drawing speeds was already understood. Faster drawing tended to cause more surface defects, some of which resulted in breaks in the wire during drawing; others caused the failure of wire sections to pass inspection. These losses were offset during the drawing operation by savings from faster production. However, it was suspected that these defects, which were minor and did not affect the ability of the finished wire rope to meet specifications, caused broken wires in later steps and thus slowed down production.

In most of the steps in the operation, from wire drawing on, the principal source of the variation in cost from lot to lot appeared to depend on the number of times a machine had to be stopped to repair breaks in the wire. The next largest variation in cost depended on the number of rejects in the inspection which followed each step.

Because of these facts, attention was focused on the effect of drawing speed on wire breakage in subsequent steps. Preliminary analysis of breakage and reject data indicated that the total number of breaks and rejects per million feet of wire, in all operations following drawing, was approximately equal to the number of surface defects

noted as passing inspection per million feet of wire drawn. This suggested that the microscopic surface defects allowed to pass inspection caused wire failures later. An experimental program to test this hypothesis was devised. Two samples of wire, one without any surface defects and the other high in defects which would normally pass inspection, were run through the operation following drawing, and the difference in the performance of each was observed.

The results of this experiment indicated that only the worst 40% of the defects caused trouble. Twenty percent of the wire broke or caused rejects during stranding; while another 20% gave similar trouble during rope closing. Surface defects caused only minor trouble in pickling, galvanizing, and bobbin winding. The remaining breaks and rejects were apparently due to other undetermined causes.

Tying these experimental results to carefully analyzed cost data, the operations research team now had a basis for measuring the effect of the drawing speed on all subsequent operations. Under current operating conditions the cost of breaks and defects occurring during drawing alone represented 4% of the production costs of the entire series of steps. Investigation showed that drawing defects accounted for another 3.2% of total production costs during the stranding operation, and still another 1.8% of total costs in the rope closing step. Thus, drawing speeds were responsible for 9% of total production cost, rather than just 4%. In short, the company was justified in spending nearly twice as much effort to reduce surface defects.

There were three ways to reduce the cost of drawing defects: (1) Reducing the drawing speed. Although it was now possible to determine the proper drawing speed to minimize the total production cost, this approach has been deferred until possible process improvements, suggested to the company's mechanical engineering staff by the operations research study, have been fully explored. (2) Using better steel rods. An investigation is now being undertaken to determine the grade of steel which would minimize total production costs. (3) Changes in bobbin

methods

winding to counteract some of the defects in drawing. By a relatively minor change in an automatic inspection device through which the wire already passes, bobbin winding can be regulated so that a considerably greater fraction of defective wire sections will be cut out. This increases the cost of bobbin winding, but it results in an over-all saving in production costs of 4.4% because of greater savings made possible in stranding and rope closing.

Although this case has not yet been completed, its results thus far have been impressive. First, it has lowered production costs significantly in the whole chain of operations associated with drawing. Second, it has led to a much better understanding of the mechanics of the interrelationships among the different processing steps, and between the processing steps and the various processing costs. Third, it has suggested unsuspected opportunities for process improvement to the company's research and engineering staff.

Location of distribution facilities

One of the most persistent problems of the large manufacturer, with an extensive marketing territory, is the proper location of regional distributing points in order to minimize freight and inventory costs while maintaining an adequate level of customer service.

A steel company, manufacturing a wide range of sizes of a single product for a nation-wide market, wanted a rational basis for locating manufacturing and distributing points. Specifically, it wanted to know how much could be saved in freight costs by (1) a new manufacturing plant closer to a regional market, (2) manufacturing and stocking all sizes of its products at the two existing manufacturing plants (only one of which made all the items and kept full inventories), and (3) establishing new regional warehouses with full inventories.

The company had felt that substantial savings could be effected in freight costs if products could be shipped at carload rates or by water to the regional distributing points, and then broken down into less-than-carload lots (LCL orders amounted to half its total retail business) to consumers.

The operations research group made

its analysis on the basis of sales for a typical month. Each order and each item in the order for this month was entered on punched cards which contained the following information: weight, shipping point, destination, and method of shipment. Cards showing rates for various methods of shipment to each destination and cost factors for handling goods through warehouses were also assembled.

All orders were processed by our computing laboratory to find the costs of the existing system of manufacturing and distribution. Next, the costs of various proposed systems for handling these orders were determined for comparison with the costs of the existing system. Management now had a precise basis for deciding how much each of the proposals would save in manufacturing and distributing costs.

In this case, a complex problem was broken down into simple components, and the extensive calculations necessary to its solution were made rapidly by the use of a punched card model.

Function of management

What are some of the problems which the executive will encounter in relation to the new applied science?

The function of management is to make decisions. At first, it might seem that operations research takes this function away from management. But operations research is not a source of automatic decisions. Although some of its recommendations speak for themselves, in most cases the operations research group only presents the facts about the quantitative aspects of a problem; it is then the duty of management to weigh these facts against the intangible, qualitative factors which form an important part of almost all business problems. Operations research cannot, for example, make predictions about future business conditions (although it can help to develop the proper strategy to meet such conditions), nor can it offer advice on personnel problems.

What operations research can do is to take some of the burden of dealing with complex situations off the shoulders of the executive by giving him the facts about his operations. (next page, please)

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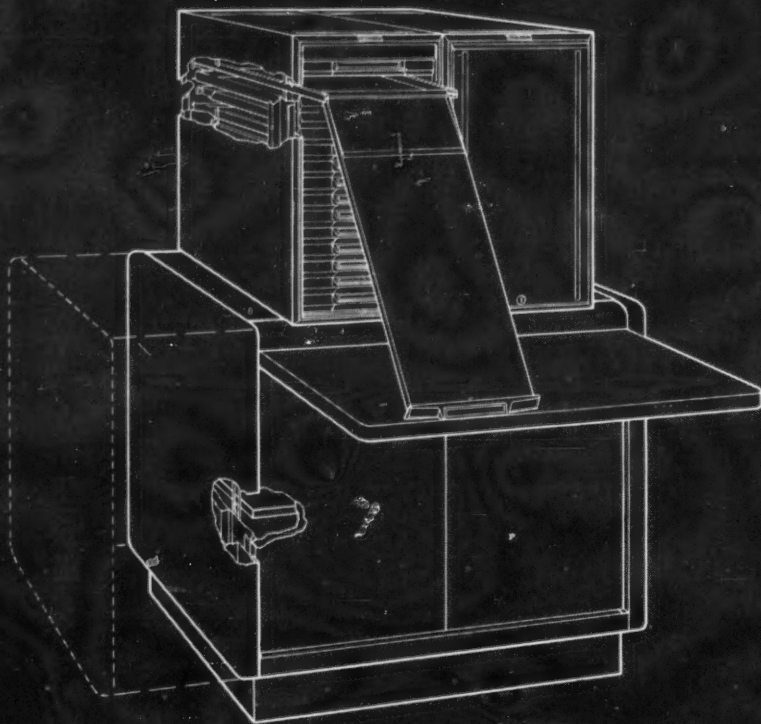
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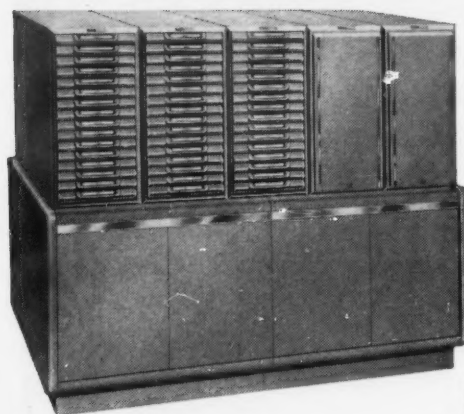
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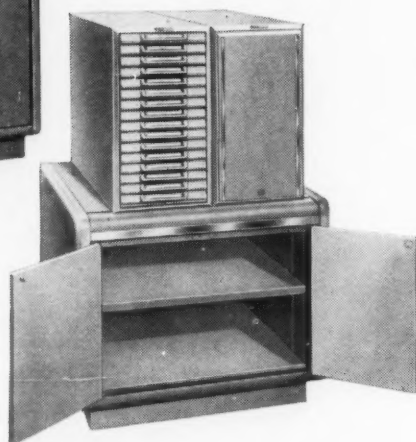
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Removable end panels
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Relation to other services

Operations research does not compete with other services to management, such as industrial engineering, market research, and cost accounting. Although no clear line can in all cases be drawn between these services and operations research, nevertheless, there are important differences. Without going into these differences in detail, it can be pointed out that operations research supplements and ties together much of the work of these other services. In fact, it is most successful in those areas where these other services are active and highly developed, and in which it can work cooperatively with a company's specialists.

Areas for investigation

There are two kinds of starting places:

- (1) trouble spots where conventional techniques have failed, and
- (2) problems which involve some aspect of total company operations and which require tying together information and facts from many different sources. In all cases there should be an opportunity for decision, quantitative study, and, last but not least, ready evaluation of results.

There is, of course, no simple method of selecting problems which are suitable for analysis by operations research. This selection can be made only after consultation between management and the research team. In many cases, it has been found that a preliminary analysis may be necessary as a first step.

Case histories show that operations research provides a sound factual basis for management to make decisions about many operating problems under its control. Although operations research is a new technique, it is well-grounded in accepted scientific principles. It has not been oversold; it has no slogans that promise more than it has been delivering.

The horizons of operations research are expanding. New concepts in probability and game theory are extending the area of operations research to new areas, for example, business strategy, understanding the impact of advertising, and others. m/m

methods

How to cut traffic costs

by Ross W. Bennington
General Traffic Manager, The United States Rubber Company

The U. S. Rubber Company gets a tremendous transportation bill every year. We pay the freight charges on some 30,000 different items manufactured in 40 factories across the country and on supplies bought from over 12,000 vendors. Despite this high volume our traffic management problems, for the most part, are basically the same as those faced by any manufacturer or distributor marketing a product. For this reason some of the procedures we have developed in the Traffic Department can be successfully adapted to other firms, both small and large.

How traffic can help

1. Choosing the Location — A trained traffic executive can save his company thousands of dollars in freight charges, particularly if shipping and receiving facilities are to be erected at the new location. In one instance our Traffic Department effected an annual savings of over \$40,000 by recommending that a factory be located within the railroad "switching limits" of a certain town. ("Switching limits" refer to a geographical demarcation for any town or city.) Within such an area, better carrier rates sometimes prevail.

2. Pin-Pointing a Warehouse — Before deciding on the warehouse location for storing branch stock, have the Traffic Manager consult with the carriers you plan to use. He will inquire about methods of transportation and quality of service—and find out just what it costs to ship goods in and out. Often he will suggest a location which means lower distribution costs based on, for example, possible carload rates to "break-bulk" points. In our company this action has been known to save over \$100,000 a year. Of course, the actual dollar savings achieved will depend on the volume of goods going through the warehouse and the number of years the property is in use.

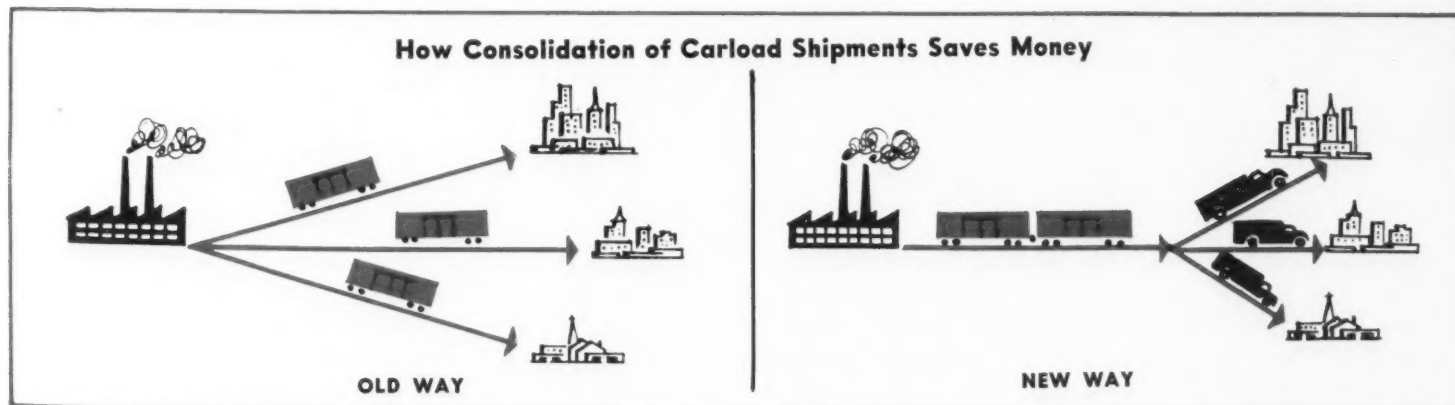
3. Moving the Plant — Shipping via the most efficient carriers and following a carefully worked-out schedule will save valuable time and avoid confusion. Traffic can help on both counts. At U.S. Rubber, the Traffic Department is even consulted about moving personnel between their homes and the new site. This includes the establishing of car pools, or perhaps arranging with the public transportation companies for additional service to get our people to their jobs on time every day.

Where to look for savings

There are many other ways in which traffic can help management get the most out of its distribution dollar. While many dollar-saving ideas are concerned with the basic traffic job—routing, scheduling, selecting carriers, and studying regulations—others touch upon such things as package design, sources for raw materials, new product development, purchasing, and sales.

Chesapeake and Ohio Railway, for example, reports the experience of a gas stove manufacturer who was shipping his products to Texas in carload quantities. The firm's Traffic Manager discovered that he could secure a much cheaper rate, based on a higher minimum weight per car, by adding a few accessories to the stoves in each car. So the company added frying pans, poker, and joints of stove-pipe to the load. The savings in freight costs added up to \$100 per car on about 300 carloads. But even more important, the company enjoyed a virtual monopoly on the gas stove business in Texas for two years, based on lower prices, before competition could figure out why.

Another example shows how co-operation between production, sales,



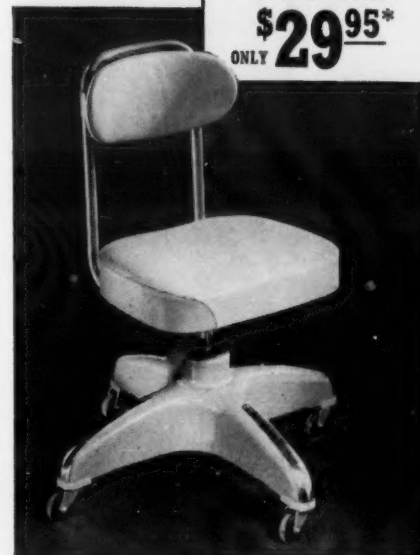
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purchasing, and Traffic Departments saved a large distillery \$400,000 a year. The company took advantage of a railroad rule which allows a lower charge for goods which are "processed in transit." The distiller was able to ship in corn, make whiskey from it, then re-ship the by-product—spent grain mash—which is a dairy feed commodity. In this case, close coordination between departments dovetailed purchasing of the raw material, production schedules, and delivery to the customer to bring about the savings.

Setting up the Traffic Department

The examples I have cited indicate, to a small degree, how company management can make fuller use of a traffic executive's training and ability. Unfortunately there is no formula or fixed set of rules that applies to all companies. Perhaps the best general axiom is the one we follow: for flexibility, let the Traffic Director answer directly to the President and give him enough help to do his job. The overall traffic setup of U.S. Rubber can

serve as a pattern for other firms.

Admittedly, our Traffic Department is organized along "big-company" lines and cannot be used in its existing form by smaller firms. However, the *functions* assigned to our various traffic divisions should be performed by even the smallest companies. This can be done by combining several of them, eliminating any which do not apply, or assigning personnel to handle more than one task. A breakdown of the General Traffic Department into *functions* would show:

Service Division — Responsible for moving *employees* by rail, air, and bus. It also handles household moves, hotel reservations, and the administration of the executive airplane with its crew of two pilots and an engineer.

Operating Division — Supervises the movement of in-bound raw materials, like crude rubber, and claims for loss or damage to raw material shipments. Incidentally, this division is assigned the job of keeping tabs on the tonnages handled by different carriers as part of our trade relations program.

Rate Division — Files rate proposals with carriers and analyzes the movement of goods to determine if rate negotiations should be started. Freight bills are sent to this department for review and claims are prepared and filed if overcharges are found. Personal appearances before the ICC and many carrier Rate Bureaus are made by this division's personnel.

Consolidation Division — Tells factories how to consolidate small shipments into full truckload or carload lots to move traffic at the lowest cost.

Foreign Divisions — Two divisions are responsible for (1) freight sent to overseas customers and factories, and (2) imported raw materials.

Custom Clearance — Within this framework, clerks in the general office are usually assigned to a particular commodity division (tires, textiles, footwear, etc.) or to a form of transportation (truck, railroad, steamship) so they can become intimately familiar with special problems. They maintain contact with the widely scattered plants by way of teletype network and direct tie-line telephone.

Traffic Department routine

The Keds rubber footwear factory provides a good example of how the Traffic Department of a small company might combine these functions. A survey had revealed that Keds' orders were being shipped directly from the plant at Naugatuck, Connecticut, to their destinations—instead of being consolidated with other orders headed in the same direction. Because such shipments either monopolize a whole car from origin to destination (at a premium rate) or are subject to delays in transit, the fundamental aim is to move material in full carloads.

First, the Consolidation Division developed a "share the ride" plan for freight. This is similar to an employee car pool. Then the Rate Division worked out the carload rates to key cities like Chicago, Kansas City, Detroit, etc. These were to be the "break-bulk" points beyond which the load would be broken up and distributed by motor carriers—also carrying pooled loads. The Operating Division assisted in determining the routes which required the least time-in-transit. The Service Division and Foreign Divisions were unaffected in this instance.

The same system also works in reverse, when basic raw materials are shipped *into* factories. Partial unloading occurs at one factory, final unloading at another. We also take advantage of unusual conditions wherever possible. For example, refrigerator cars that bring perishable foods from the west coast normally return empty. By using these cars for east-to-west shipments, a time savings can be realized.

For the company faced with complex traffic problems, other aspects of our traffic organization may be of interest. In particular, a large firm usually faces the formidable task of two-way communication with their traffic personnel throughout the company. One way that the General Traffic central office reaches branches and factories is via a Weekly Traffic Letter. The letter contains a digest of pertinent information compiled from transportation publications, as well as items of general interest which need not be sent by direct communications to individuals.

Conversely, the general office receives

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methods



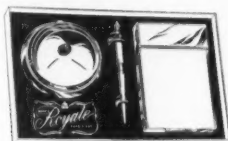
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november 1954

a daily shipping report from every factory. This form contains such information as the number of packages, weight, kind of material, destination, and routing of shipments to and from each factory. As an additional control, communications between factories are funneled through the general offices, too. By channeling this form through the General Traffic Manager and all departmental divisions, a clear picture of daily operations is obtained.

Let traffic tell its story

In addition to the daily report, we require each factory to send in a monthly report covering such items as total shipments, amount of charges paid, number of claims filed, demurrage, and so on. This data is combined into a general statistical report and finally appears in a periodic report to the Executive Committee.

One of the most important duties of the Traffic Manager is to show the results of his activities to company management. Recently this writer, in the company of the Director of Traffic, was asked to appear before the Board of Directors. The Board wished to know, in a general way, the nature and scope of the Traffic Department's activities. Although the time allotted for so broad a subject was relatively short, by means of charts, maps, and graphs we were able to describe our activities and show their fundamental importance in the total company effort. m/m

"worth

Smaller planes, wider coverage:

Today, some 8,000 companies own and operate more than 10,000 planes, as compared with the 1,060 planes operated by the scheduled domestic carriers. The trend in business flying is more toward company utilization of planes for transportation alone. Estimates of approximately 10c a mile for flying are being compared to the American Automobile Association report of 9.16c a mile for 10,000 miles of driving a car in the \$2,000 price class (including depreciation and insurance). There are 6,237 airports capable of handling small executive aircraft, but very few are used by scheduled airlines. Smaller executive planes are low in original and operating costs.

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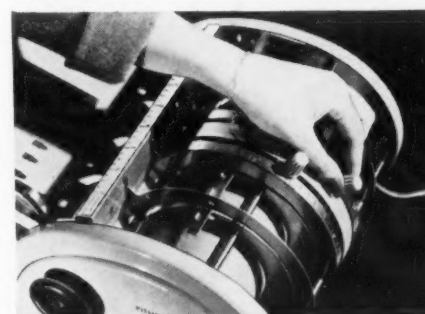
● The FH, electrically driven, with semi-automatic feed, is fast and accurate. It can make two folds at once—and double-fold letter sheets up to 5,000 per hour! (Automatic feed optional at slight extra cost.) Even folds sheets stapled together.

● The FH makes eight different folds, handles paper from 3 x 3 to 8½ x 14 inches in a wide range of weights and finishes. And you can set it for any job in only a few seconds—by simply moving two knobs to adjust for the wanted fold widths . . . easy as tuning your TV!

● Call your nearest Pitney-Bowes office for a demonstration. Or send the coupon for free illustrated booklet.

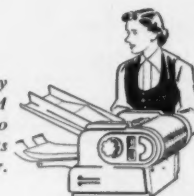


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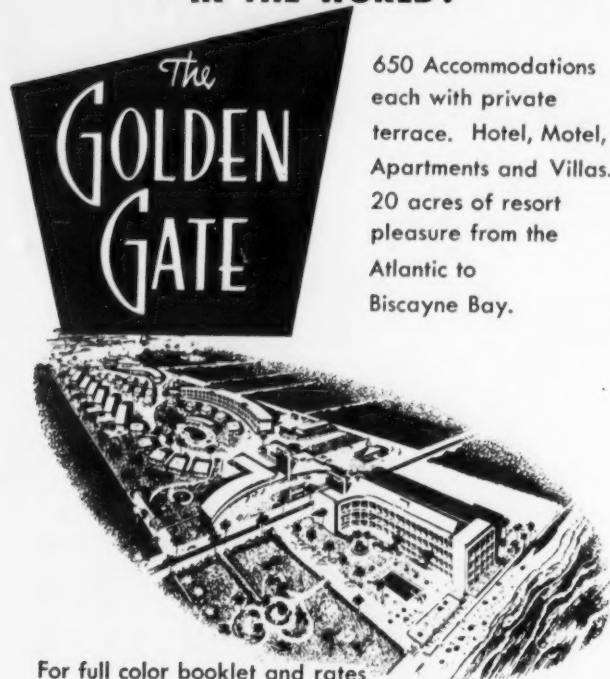
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Daylighting

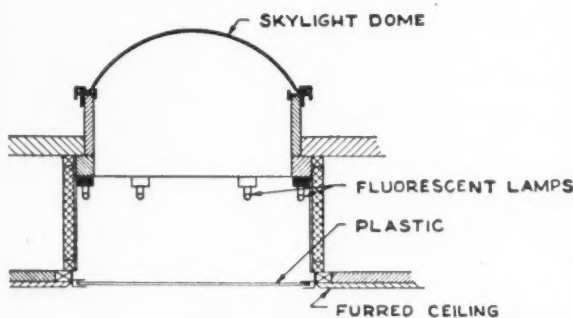
as a supplement to artificial lighting

The problem of providing more economical and efficient lighting for interior warehouse areas recently faced the Ripon Foods Co. in building an addition to their main warehouse. The installation of a new-type skylight, a through-the-roof plastic dome, solved their lighting and structural problems.

The importance of proper daylighting is generally recognized. Whenever possible, natural daylighting should be planned in advance rather than as a secondary measure. In this case, "sky-domes" were specified by architects Sandstedt & Knoop because flat, glass skylights in the main building had proven unsatisfactory due to leakage from rain. The new leakproof plastic domes will serve to light the central part of the addition which could not be reached by lateral illumination.

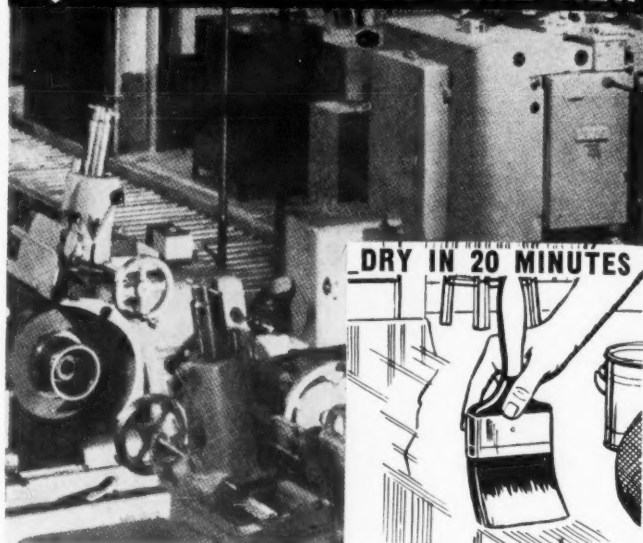
Overhead natural lighting should not be used as a substitute for artificial lighting, but as an individual tool given to each area because of the nature of the work to be performed there. Both should blend together to provide the ideal visual conditions.

Architects Sherwood Mills & Smith devised a plan for successfully integrating daylight with artificial light. Strips of fluorescent lights were mounted above translucent plastic panels, as shown in the diagram below:



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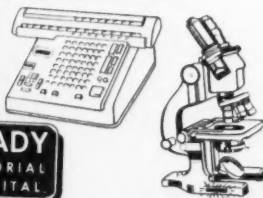
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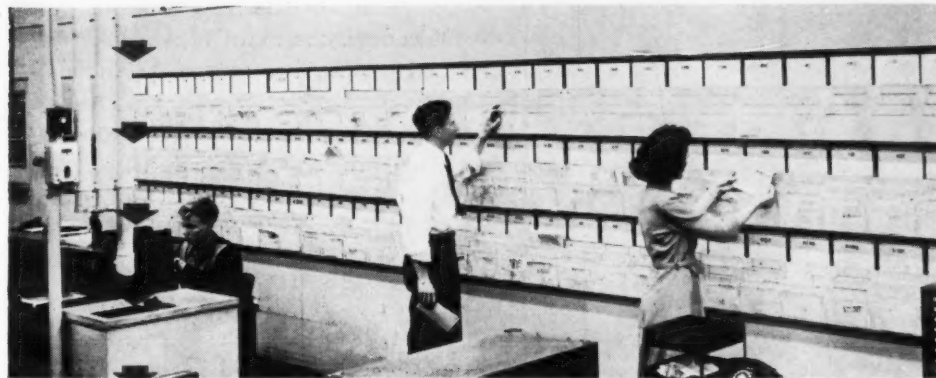
Excessive "down-time" is a serious problem at the Reliance Electric & Engineering Company in Cleveland, since they turn out a variety of products on relatively few types of machines. Idle machines actually may make the difference between operating at a profit or just getting by. Idle time is kept at a minimum by using pneumatic tubes to handle the paper-work flow between all of the production control stations.

A prime reason for machines running at less than capacity was *inertia in the control system itself*. There is now very close control, because machining operations can be master-minded from one central location without unnecessary delays. The main benefits of the new system are:

1. Reduced manufacturing costs.
2. Earlier delivery dates promised to customers.
3. Less time for work-in-process.
4. Improved operator morale.

All work planning, routing, and scheduling stems from a main control room—the nerve center—and fans out to three widely separated dispatch booths. Strategically placed in the receiving area, machine shop, and welding and fabricating department, the booths permit close contact to be maintained with the control room.

As an example, consider the dispatching of critical materials received at the plant. At the time the material



Central control board holds both "scheduled" and "awaiting scheduling" operations cards.

Cards describe particular machine operations, i.e. milling, turning, drilling, etc.



Machine shop dispatch booth's board holds cards for delivery to appropriate foremen.

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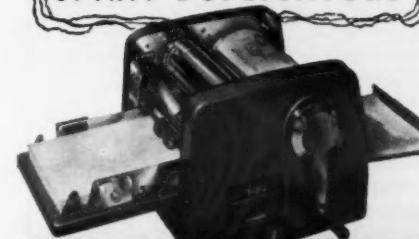
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is ordered, central control schedules production of an item on a particular machine. When material to fill the order arrives, the main control room is notified by air-tube. Although the receiving department is some 450 feet away, central control is able to assign the material to the proper machine (again via tube) without extra handling. As soon as the particular machine can be set up, it is ready to produce—with all materials at hand.

Of course, the main function of the central production control room is to keep every machine running as close to full-time as possible. To keep tabs on each machine unit, a rack with rows of "pockets" is attached to the wall of the room. There are two "pockets" per machine; white "operations" cards are placed on each one.

An operations card describes a particular machine operation, i.e., milling, turning, drilling, or grinding. By grouping similar cards—*thus similar machine operations*—together in one pocket, all operations will be done on the same machine. Running time for a given machine set-up is increased: time lost in setting-up for widely varied operations is completely eliminated. The second pocket for a machine contains another batch of operations cards. These are "awaiting scheduling" and are again grouped so the same operation or sequence of operations will be performed on a single machine set-up.

Control based on six-copy form

Tracing a new order from start to finish will best show how the system works. As a first step, the production planning department determines what materials are needed and lists the components to be manufactured. Next, central control schedules the machine to make the components by making up the operations card. At this point, a master production control form is filled out. Six copies are distributed in the following manner:

1. Identification: stays with the order throughout production.

2. Production Record: remains in the central control room as a check on progress.

3. Stock Materials Requisition: is sent to the stock materials department.

4. Route Card: accompanies order when being moved between production points.

5. Cost Department: sent here to be used as a basis for determining cost to manufacture.

6. Dispatch Booth Copy: conveyed by tube, first to machine shop booth, then to fabricating and welding booth.

All operations are controlled

Manufacturing actually begins when the "dispatch booth" copy and white "operations" card are placed in a carrier and sent to the machine shop booth by tube. When the forms arrive at this control station, the operations card is put on a small production control board until picked up by the appropriate foreman.

Simultaneously the stock room has received the Stock Materials Requisition, Identification, and Route Card copies. Material is issued, Identification is permanently attached, and a mover delivers the material to the proper machine location.

In this manner, central control knows whether material is carried in stock, or has to be ordered from outside. In either case, the material remains at the machine until used up in the process.

The six copies of the master production control form might be termed "progress reports" and the tubes are a vehicle for quickly moving them from place to place. The arrival of any single copy at central control signals one step in the progress of an order through the plant. Any expediting action deemed necessary can be taken, if one of the six copies is returned.

An identical procedure is followed for welding and fabricating: copies go out by tube and their return signifies that some operation is finished. Forms pass back and forth through the tubes continuously each day, covering hundreds of operations, yet the pneumatic tube system links all production points as if they were side-by-side. m/m

methods

by William W. Wade
Prepared in cooperation with the
American Institute of Accountants

How to get a bank loan

*The symptoms of financial health
by which your company is judged*

The financial officers of your company may always have the answer to every question about your company's credit standing at their finger tips, but there are many occasions when *executives in other departments* could use a clearer understanding of how to obtain credit.

The availability of bank loans can be related to such things as sales policy, plant expansion, re-equipment programs, and a host of other matters that bear directly or indirectly on profits. It helps when the entire management team knows the fundamentals.

Different businesses, of course, have different borrowing patterns. One company may use bank credit only sparingly; another will say, matter of factly, in its annual report that its liabilities include "Money borrowed from banks—\$70,000,000." But, whether the borrowed sum is in millions or thousands of dollars, the bankers who extend the loans follow the same principles.

Some criteria for bank credit

The first step in understanding bank loans is to look at them from the bank's point of view. They want to extend credit, *if* there is reasonable assurance the loan will be repaid. The bank, therefore, looks into your company's business affairs to see how a loan will help to increase your earnings, and thus enable you to make repayment. Bankers sometimes talk of the "5 C's" when they are considering a loan application—character, capacity, capital, collateral, and conditions.

Character and *capacity* apply to the management-ownership complex of

your company. The bank will check such things as the character of your officers and principal stockholders, information supplied by references, and the record of repayment of previous loans received by your firm. It will be interested in your company's capacity for business achievement, its business history, and its prospects. Unless the bank can satisfy itself about character and capacity, for obvious reasons, there would be no further consideration.

Capital is next: the banker examines how great the borrowed funds will be in proportion to the equity capital provided by the owners of the company. Banks are not in the business of supplying "venture" capital. Only inexperienced businessmen expect banks to put up the major share of their capital. Before deciding the reasonable limit on a firm's credit, bankers will study existing debt, whether it is short-term or long-term, to what extent the company improves its capital position through earnings retained in the business, and so forth.

Bankers say that *collateral* doesn't make a bad loan good, but may make a good loan better. Bankers do not like to foreclose. They are more interested in the borrower's normal capacity to repay, than the price his office equipment, real estate, or other assets will bring in a forced sale. Collateral may be necessary, but it is only a secondary line of protection.

Conditions refer to the influence of business conditions on the consideration of loans. The banker, like all businessmen, watches the over-all economic climate that affects the "tightness" or

"easiness" of credit, and he also keeps a sharp weather eye on local conditions and on trends in industries.

Furnishing information

The bank satisfies itself by checking the references you supply, by asking you questions, and by going over your balance sheets and income statements for recent years. The financial statements are important, and the bank is interested in how they are verified.

Your company's certified public accountant is almost certain to be called into the transaction when sizable loans are involved. The bank places confidence in your CPA's opinion of your financial statements. That is why a certified audit may be necessary before your loan is approved.

For unsecured loans of \$10,000 and up, the tendency is to make an audit a definite requirement. Discussions with the banker are desirable, in order to agree on the form of the auditor's report and the information submitted.

An auditor's report will usually be either a "long-form" or "short-form" report. The short-form report will contain your financial statements and the CPA's opinion of them. The long-form report—often preferred by bankers when the situation warrants—will contain additional comment, analyses, schedules, and interpretations.

Whatever the form of the report, the scope of the audit should not be restricted. Since the purpose of the audit is to express an independent opinion on the financial statements, the auditor himself must determine the scope of the examination necessary to satisfy



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SATURDAY

1

JAN. 1955

DATE	DATE	DATE	DATE
1 Jan 6	45 Feb 15	150 May 31	
10 Jan 11	60 Mar 2	180 June 30	
20 Jan 21	90 Apr 1	210 July 30	
30 Jan 31	120 May 1	240 Aug 29	
1 Jan 8	18 May 7	26 Sep 17	
2 Jan 15	19 May 14	27 Sep 24	
3 Jan 22	20 May 21	28 Sep 30	
4 Jan 29	21 May 28	29 Oct 1	
5 Feb 5	22 June 4	30 Oct 8	
6 Feb 12	23 June 11	31 Oct 15	
7 Feb 19	24 June 18	1 Nov 22	
8 Feb 26	25 June 25	2 Nov 29	
9 Mar 5	26 July 2	3 Nov 5	
10 Mar 12	27 July 9	4 Nov 12	
11 Mar 19	28 July 16	5 Nov 19	
12 Mar 26	29 July 23	6 Dec 3	
13 Apr 2	30 Aug 6	7 Dec 10	
14 Apr 9	31 Aug 13	8 Dec 17	
15 Apr 16	1 Sep 20	9 Dec 24	
16 Apr 23	2 Sep 27	10 Dec 31	
17 Apr 30	3 Sep 3		

4 WEEK ACCOUNTING PERIODS FOR YEAR ENDING DEC 31

DATE	DATE	DATE	DATE
1 Jan 29	5 May 21	10 Oct 8	
2 Feb 5	6 June 18	11 Nov 5	
3 Mar 12	7 July 25	12 Dec 3	
4 Apr 19	8 Aug 1	13 Dec 10	

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(Circle 620 for more information)

him as to the fairness of your financial statements. An unrestricted audit is necessary for the expression of an unqualified opinion—the only kind that can give the banker assurance.

How good a risk?

Once your banker is satisfied with your financial statements, he assesses your economic health by a number of different ratios, or standards. Here are some commonly used ratios:

Current ratio. Current assets divided by current liabilities; should usually be at least two-to-one.

Quick assets to current debt. Cash, receivables, and other ready cash items divided by current debt; should usually be at least one-to-one.

Debt to capital. Creditors' money compared to owner's money in the business; the lower the ratio, the better.

Fixed assets to capital. Real estate, buildings, machinery, equipment, and fixtures divided by net assets; ratio should be kept as low as possible to avoid depletion of working capital.

Inventory to working capital. Shows percentage of working capital tied up in inventory; abnormally high ratio may result in shortage of liquid working capital to meet other expenses.

Bankers are accustomed to comparing these ratios with those prevailing in the loan applicant's line of business. They also make comparison of the applicant's ratios over several years to see if the trend is in a favorable direction.

By the time the bank is through weighing and analyzing, it knows a great deal about your financial affairs—and, of course, it will help if you and other company officers take the banker into your confidence, realizing that he is used to receiving confidential information and treating it as such. Another point bankers appreciate is having prospective borrowers furnish them with financial statements as a matter of routine, so that they will be on file whenever application for a loan is made. And, of course, banks prefer customers who anticipate their credit needs—thereby allowing time for the proper review of the credit request.

Once a loan is approved, your ability to repay promptly will determine your future credit standing. m/m

methods

diagnostics

FOR MANAGEMENT

by Leslie M. Slote

Ass't. to the Pres., Ketay Instrument Corp.
Management and Labor Relations Consultant

question:

"We have made several bad mistakes lately in selecting supervisors from below. We have seen lists of qualifications for good supervisors, but they read like textbook advice. How can management really tell what makes a good supervisor?"

answer:

That depends on what management expects of a good supervisor. No practical purpose will be served by furnishing a "canned" list of ideal attributes which the good supervisor ought to possess. There are no simple answers such as "leadership ability," "cost-consciousness," or ability to deal with people. The negative approach is easier, because most companies have learned the hard way, through the "bloody nose" technique. We know that poor supervision means lack of organization, inadequate utilization of manpower, materials, and equipment, plus employee dissatisfaction with the job, management, and the company. The equation always balances out in lower productivity and higher costs.

The good supervisor is only good when he is made aware of the goals management seeks. A potential supervisor must at least have the necessary basic intelligence, aptitudes, and mental health required for the job. Supervisory abilities are not inborn. For example, the U. S. Army—which certainly should be expert about what makes good leaders—says in its Field Manual: "... leadership is not inherent; it depends upon traits which can be developed, and upon the application of techniques which can be learned ... Developing the art is a continuing

process which involves the recognition and practice of the basic traits of leadership, and the understanding and application of sound leadership principles and techniques."

General Electric's unusually successful program for selecting supervisors is based on choosing candidates with the best potential—those who are the most likely to succeed on the job. After intensive research, they identified and used three requirements common to all supervisory positions: human relations responsibilities, administrative responsibilities, and technical knowledge.

The first step in G.E.'s actual selection procedure is to determine the specifications for the job to be filled, by writing a job description listing both general and specific duties and qualifications needed. They next obtain names of possible candidates from present supervisors and managers. These candidates are then evaluated by examining the company personnel records, checking outside references to verify prior employment, and investigating on-the-job performance.

Psychological tests are administered and scores interpreted in relation to job requirements. Intensive interviews with candidates follow, and then each candidate's qualifications are summarized in relation to job requirements. After making the selection, the final step is to counsel unsuccessful candidates by reviewing both their strong and weak points, and making constructive suggestions for self-improvement.

Since no candidate for supervisory development will fit your bill of particulars in all respects, the next step is to determine specific, individual needs, and then custom-tailor your training program accordingly. The Esso Stand-



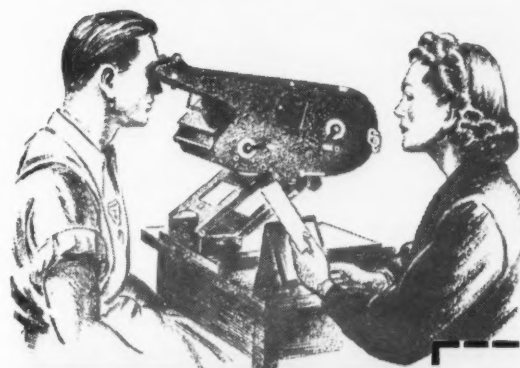
How many on YOUR payroll?

Think of the money you'd be losing if 4 out of 10 of your employees worked blindfolded! But have you any idea of how much you *are* losing on workers whose eyes aren't right for their jobs?

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(Circle 608 for more information)

ard Oil Company policy is to devote adequate time, effort, and facilities to provide a sound and complete training program in order to continue the development of *new, present, and potential* supervisors.

For example, a new supervisor takes a course in "Basics of Supervision" to enable him to adjust from his former status as a worker to that of a representative of management. The course shows him what he *ought to know* and do, and how to fulfill his newly acquired responsibilities. It is a concentrated, full-time, two-week course covering three broad phases: 1) What the supervisor should *be* in terms of supervisory requirements and responsibilities, and how he fits into the over-all company picture. 2) What the supervisor should *do* in dealing with people, orienting and training workers, planning work and budgeting time, giving orders and following up, disciplining, etc. 3) What the supervisor should *know* with respect to employee and union relations, handling grievances, administering personnel policies, safety, cost control, wage and salary administration, working schedules and overtime rules, rating employees, etc.

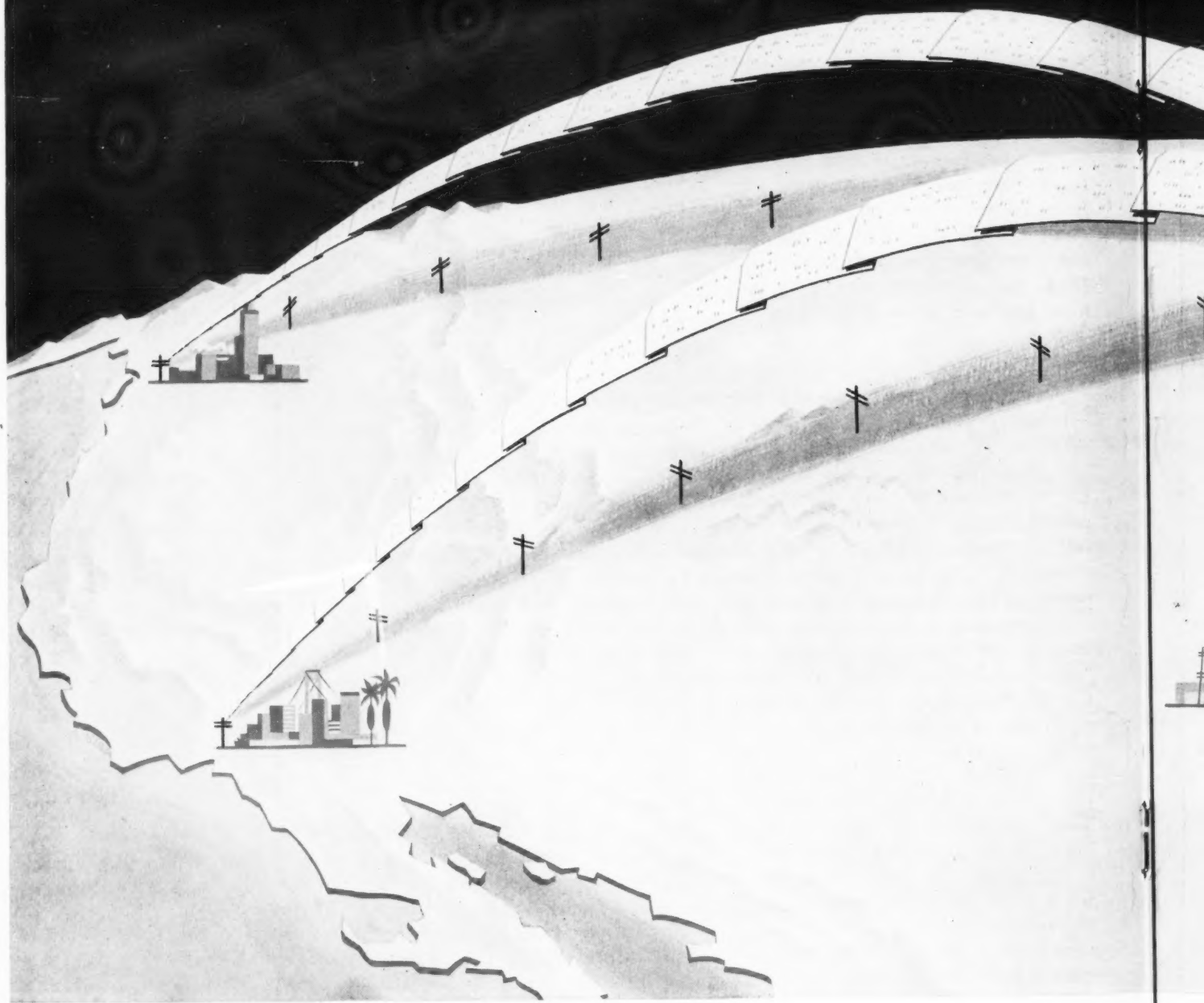
Present supervisors, who have not completed the basic course or its equivalent, take a course in "Supervision Principles" which is geared to the supervisor's needs, depending upon his stage of development. Therefore, no specific time limit or length of course is prescribed. In general, training is provided in job instruction techniques, job improvement methods, job relations techniques, job management fundamentals, budgeting time, developing understudies, conducting meetings, settling grievances, etc. Topics are not treated exhaustively, but are presented from the viewpoint of common sense, easily applied, scientific principles.

A supervisor doesn't have to be the most proficient operator or technician, as long as he knows the capabilities and limitations of the equipment and is able to instruct, when required.

Louis Ruthenburg, Chairman of the Board of Servel, Inc., relates this pertinent story:

"I saw a woman turret lathe operator standing idle. I knew her to be one of the best operators in the shop,

The New IBM



The current interest of business management in centralized data processing gives new importance to *data transmission*.

With the new IBM TRANSCEIVER it is now possible, in effect, to transmit IBM cards over telephone or telegraph lines. A card read at one end of the line produces a card at the other end. The entire operation is automatic, fast and accurate.

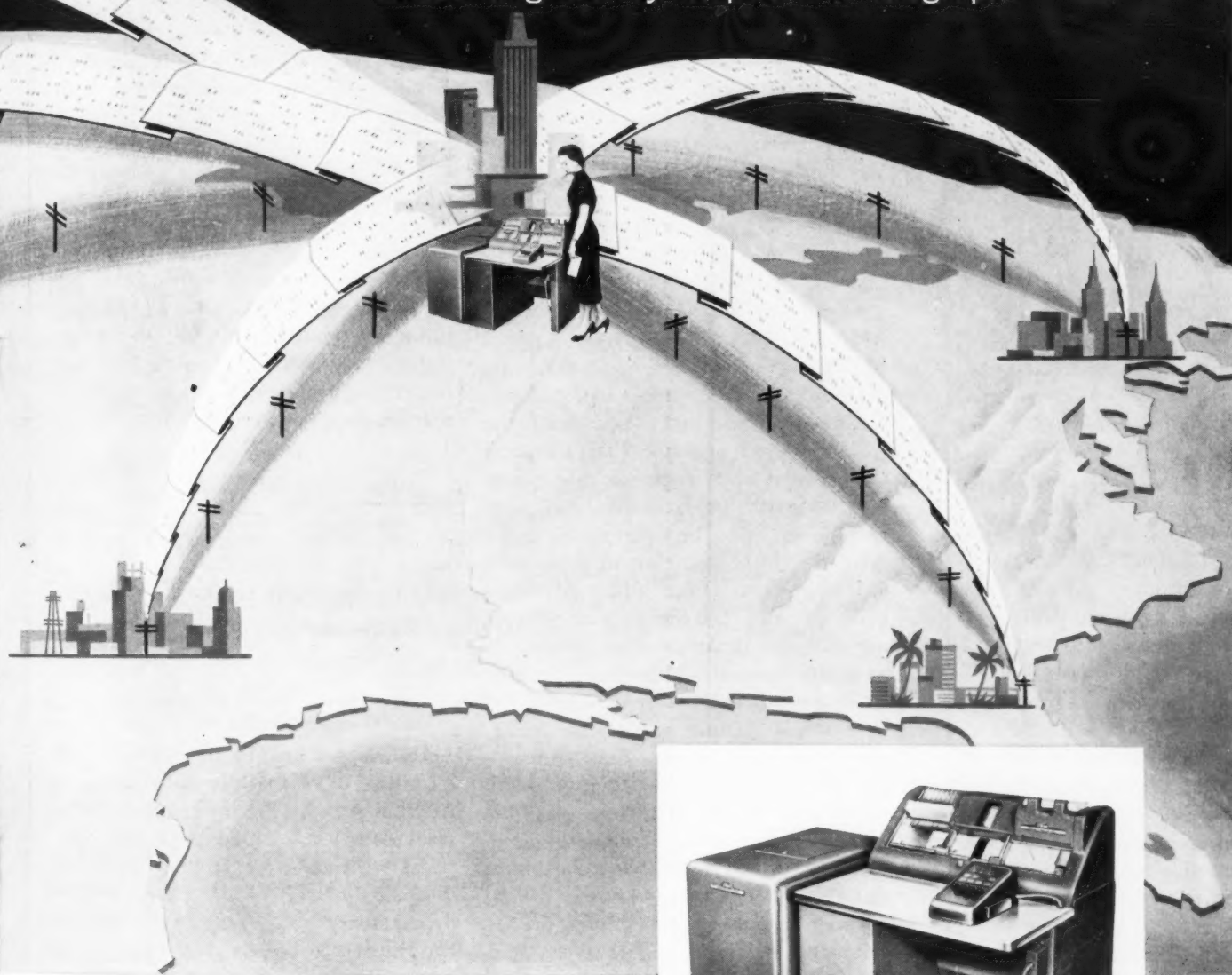
(Circle 630 for more information)

Orders taken at a branch office can be billed from the home office without delay. Up-to-date centralized inventory control can be maintained. Consolidated sales figures can be produced almost overnight. Data from employee time cards can be transmitted to a processing center, and punched card pay checks and earnings statements transmitted back—by the same equipment.

methods

TRANSCEIVER

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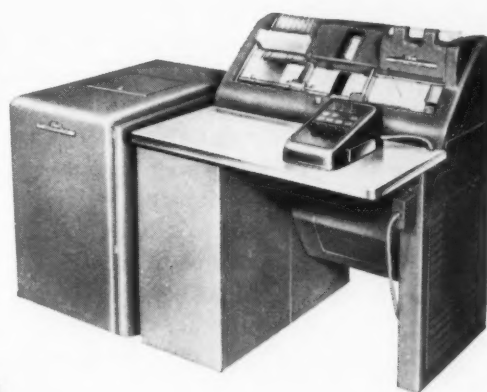


These are but a few of the new data processing methods made possible by the IBM TRANSCEIVER.

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and when I asked her why her machine wasn't in operation, she said, 'I am glad you asked me that. The machine is down because I am waiting for the tools to be sharpened. I want to show you what kind of a deal I'm getting.' She showed me her time cards and pointed out that she was losing two hours a day. She said, 'I'm an experienced piece-work operator and can make up an hour's loss a day, but I can't make up two hours' loss.' I asked her if she had seen a set of spare tools, and she said she never had. I then called the foreman and asked him where the spare tools were. He said that there wasn't a spare set. However, I said I was familiar with the tool listing on this particular job and knew that a second set of tools had been provided. I told him I would wait ten minutes while he dug them up. The tools were produced, and I said to the woman, 'You see, a spare set of tools has been provided. The spare set should always be sharpened and available in the tool room when your tools become dull.'

"I then took the foreman into his office and said, 'You know this woman is an unusually good operator, and you have been deliberately holding her earnings. The only excuse you have is that the old management criticized you when earnings ran high. I have told you repeatedly that we want piece workers to earn all they can because high piece-work earnings increase the company's profits. Somehow you failed to understand this policy.'"

This story points up the fact that supervisors' shortcomings are often due to management's lack of supervisor-education. The burden rests with management to communicate company policy to supervisors.

We can determine whether we are turning out a good supervisor by measuring results on the job. Check to see if production and quality improve, operating costs decrease, scrap decreases, etc. Check for morale, before and after, through an attitude survey. Examine records on grievances, lateness, and absenteeism.

It pays to remember that, in developing a good supervisor, his attitude is a critical factor. This is determined by the firm and its policies, and the attitude of the man and his superior. m/m

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thought starters

Thought Starters deal with a "practical solution to a management problem." The Editor invites contributions—which are paid for at our normal space rates.

METHODS

thought starter

Earlier pickup solves mail distribution problem



Edmond W. McNamara
Systems & Procedures Analyst
The Bassick Company
Bridgeport, Connecticut

In order to speed up our mail distribution problem, we made an adjustment in our morning starting time for several employees. Now, when our office staff arrives at work, their mail is waiting for them on their desks.

Our office starting time is officially eight o'clock. We made arrangements for our "jeep driver" to pick up the sacks of mail at the post office at 7:00 (instead of 7:30), and have them delivered to the office by 7:15 (instead of 7:45). Our mail boy now reports for work at 7:15 (instead of 8:00).

He opens all sacks and sorts the mail into two groups: that which is addressed to specific people and, therefore, is to be delivered unopened, and that which is to be opened. Next, he scale-weighs that which is to be opened, as a guide to how much help he might need. He delivers the balance personally to the desks of the persons to whom addressed. This phase is generally completed before 8 o'clock, so that when people report for work, they have mail waiting for them.

Two part-time girls (three on Mondays), recruited from various office departments, are assigned to help open the mail which must be opened and distributed. These girls know a day in advance that they are scheduled for the following day. They report to the mail boy at 8 o'clock. He then assigns them batches to be opened. Based on the number of pounds of mail and the number and caliber of girls assigned, he reports to his supervisor at 8:15, telling him what time he estimates that the mail will be completely distributed. This gives the supervisor notice of any unusual volume so that he can solicit extra help if necessary.

After the final piece of mail has been distributed, the mail boy reports again to his supervisor. He then records, on a worksheet, the number of pounds handled, the completion time, and the names of the girls who helped. The mere fact of recording completion time on the worksheet serves to control the activity of the mail distribution. It also furnishes a record of pounds handled, and time required for handling. Even more important, it indicates (after a period of time) those girls who handle the mail most efficiently. This pin-points the need for further training and instruction.

The task of reporting and recording pertinent data requires less than three minutes daily. This is considerably less time than was previously wasted in disputes and controversies under the old system. The net effect is that we get better mail service with less wear and tear on people's nerves.

SYSTEMS

thought starter

Mail handling simplified by numerical routing system



R. Green
Office Manager
Electric Machinery Mfg. Co.
Minneapolis 13, Minn.

One of the continuing problems in handling office mail is the routing of internal mail to the proper desks. The most common method of routing appears to consist of having the individual's name, and possibly the department, indicated at the top of the sheet to be routed; i.e., "J. J. Jones—Legal Department."

Our company uses a desk number designation. Each desk has a number, the number being placed on the individual's "In Letter Tray." A Directory is issued covering both the numerical and alphabetical listings. The numbering follows the same sequence that a messenger travels, so that each area has its own block of

methods

numbers. As a result, there is considerably less chance for errors in mail handling and less time taken in addressing routings.

A further refinement of the system is added by tying-in desk numbers with phone numbers. We recently installed an automatic dial system, having telephone stations in 200 and 300 number series. The station numbers and desk numbers are both the same, so that one Directory number covers both the individual's station number and telephone number. Where more than one desk shares a phone, the mail is directed properly by an alphabetic suffix (e.g., 200A). An example of the Directory is as follows:

Desk & Telephone List —Numerical **Desk & Telephone List —Alphabetical**

200 Baird	267 Accounts Payable
201 Nurse-Central	327 Andersen, C.
201 Hawkinson	382 Andersen, F.
202 Mongan	277 Andersen, Hilmer
202A Waibel	395 Anderson, Homer
203 Bull	224 Anderson, R.
204 Deis	213 Andrews
205 Steele	335 Antolek
206 LaFontaine	245 Archer
207 Tabulating	233 Arnold
207 Olson, K.	363A Augustson
208 Schroeder, A.	200 Baird
209 Enroth	396 Ballot
209A Olson, Carol	
210 Petersen, H.	
210A Sorenson	
210B Reis, L.	
210C Student-Standards	

SALES

thought starter

Stockholders indoctrinated as "salesmen" at employee party

When the Fairchild Camera and Instrument Corporation, in New York, planned an open house for its employees, they decided to invite corporate stockholders.

The company reasoned that the employees and the stockholders are actually partners and should, therefore, get to know each other better. The company also assumed that a group of satisfied stockholders make devoted spare-time "salesmen," taking advantage of every opportunity to say a good word about the company.

The employee-stockholder function, though informal, included well-organized tours of the plant. This not only acquaints stockholders with the manner in which the various departments function, but also gives all employees a chance to see how other departments work.

november 1954

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CLERICAL

thought  starter

New device gauges typing, controls clerical costs

Here is a simple and accurate method, recently devised, which office management will find especially useful in not only reducing typing costs, but controlling them as well.

The device is a transparent plastic chart which measures the time required for doing work, and also how well the actual time is utilized. The standard minutes on the timer, when compared with the actual time spent, show just where wasted time occurs. Net savings up to 20% in typing and stenographic payroll are claimed in the use of this new chart device.

It enables management to judge the time required to do a normal work load and plan an accurate schedule or assignment sheet accordingly.

A chart is placed over the typed area and read directly, showing the stand-



ard minutes per page. Different standards are shown for the different sources of work, whether it is printed or typed copy, or shorthand notes.

The timer is inexpensive when compared to a costly keystroke counter, or to the time spent in counting lines and square-inches typed, or converting such counts into time standards.

For more information, circle number 678 on the Reader Service Card.

SALES

thought  starter

Electronic machine aids in unit control work

Sales clerks may now devote more time to selling and leave such tedious

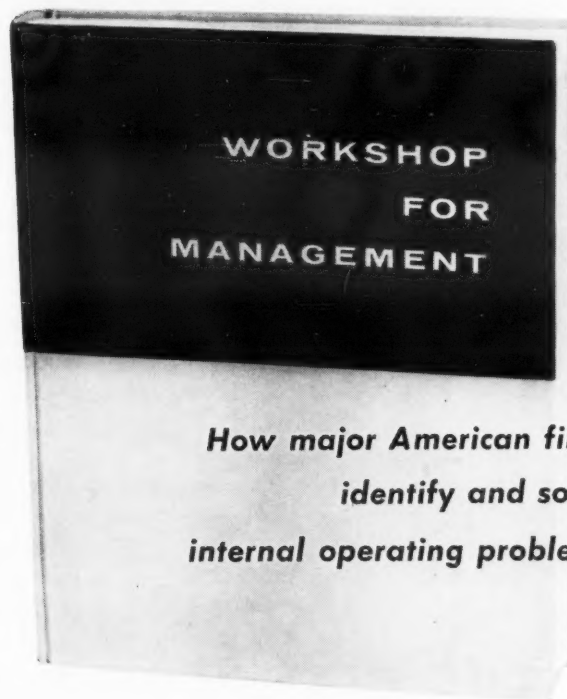
This book is Guaranteed to pay for itself

ON THE 25TH OF OCTOBER, 2,000 men sat down in New York City for one of the most definitive three-day management workshops ever held. *Their purpose:* to exchange ideas on how to simplify and reduce the cost of running a business, with special attention to proven electronics systems.

While the Conference and panel sessions were going on, thirteen different Seminars were being conducted simultaneously. Obviously, a man could not possibly attend all of the meetings and Seminars, so it was decided to transcribe the entire proceedings.

A straight transcription could be mighty difficult to read and use. Therefore, the editorial staff of *MANAGEMENT METHODS* Magazine was retained by the Systems and Procedures Association, sponsors of the meeting, to edit and completely index the transcriptions.

The result is a *hard-bound book* of approximately 500 pages. It's a large book (8½" x 11"), set in book type, with pertinent charts, forms, and other illustrations.



Why this book was published

Most business books today are written for "technicians." The management man gets lost in jargon after the first few pages.

That's where *WORKSHOP FOR MANAGEMENT* differs:

- 1) This book wasn't "written" at all — it's a word-for-word transcription of one of the most complete management conferences and workshops ever conducted.
- 2) It is slanted specifically for management, using non-technical language, and reporting in terms of end results.

With this in mind, glance at the partial Table of Contents and you'll see why we are willing to offer it to you on a *firm, money-back* guarantee basis.

A practical symposium on electronics

In addition to covering all major areas for improving management methods, special emphasis on Electronics for the Office is featured in both the general conference addresses and panels, *as well as* in the Seminars. The Seminars, in particular, are designed for so-called "beginners," as well as partially-informed executives.

This information is of special value at this time. Electronics manufacturers have made tremendous strides in the last twelve months in developing practical office applications. The only thing that stands in the way of another development spurt is the time it takes potential users to educate themselves as to how now-perfected equipment can be applied to their operations. Under normal conditions, a company can expect at least a twelve-month lag between a decision to "get the facts" and actual ability to evaluate whether or not electronics applications are feasible for them. This material can materially reduce this time lag.

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the first day you use it!

a partial table of contents

EVERYONE IS ON INCENTIVE

*Ford R. Larrabee, President
Cincinnati Industries, Inc.*

The speaker presents a first hand account of the nine incentive plans in effect at his company, covering production and maintenance personnel in the plant through supervisory, office, and technical employees, as well as sales executives. Such comprehensive coverage is particularly interesting since there are less than 300 employees in the company. The workings of these plans, the results obtained, and the speaker's evaluation of them plus incentives generally are presented.

SAMPLING AS A MANAGEMENT TOOL

*E. T. Magruder, Statistician — General Research
The Chesapeake and Potomac Telephone Companies*
Mr. Magruder demonstrates why he believes the potential economy and accuracy of sampling as a management tool on the office end of the production line is not yet fully appreciated. An understanding of a few basic sampling principles is all that is needed to make good use of this management tool for a wide variety of measurement problems. Enough technical discussion is included to be suggestive to those interested in an actual application.

ANALYZING CLERICAL COSTS TO ACHIEVE SAVINGS

*Edmund D. Dwyer, Director, Office Methods
Department of the Navy*

Mr. Dwyer points out the direct ways of evaluating the magnitude and cost of clerical work. The clerical cost situation of an organization can be appraised in terms of contribution to or detracting from total efficiency. Controls over clerical costs can be one-time "shots in the arm" or they can be continuing. Some of the continuing management controls and techniques that the Navy uses are described, including their benefits measured in terms of direct tangible savings.

WORK SIMPLIFICATION

*Roy W. Rix, General Supervisor, Work Methods
The Cleveland Electric Illuminating Company*

Mr. Rix discusses why Cleveland Electric Illuminating Company selected Work Simplification for a cost reduction program. How Work Simplification is applied and what benefits can be received far beyond the objective of cost reduction. How active employee participation has made the Cleveland Electric Illuminating Company's program a success.

OPERATIONS RESEARCH

*Dr. Andrew Vazsonyi, Head
Management Sciences Research
The Ramo-Wooldridge Corporation*

Dr. Vazsonyi argues that problems that have been handled intuitively in the past can be solved now on a

factual basis. For non-scientific personnel, it is not easy to become familiar with these new techniques. It is particularly difficult to understand what one might call the general strategy of mathematics in business. Dr. Vazsonyi describes, in non-technical terms, what mathematicians can do for management by surveying the methodology used in Operations Research. Illustrative examples illuminate the particular points in question.

CONTROL OF CLERICAL COSTS

*Willard F. McCormick and John E. Bradley
Cresap, McCormick & Paget
Management Consultants*

Clerical costs are discussed as a task primarily involving work elimination and simplification, application of standards of performance, and budgetary control. Emphasis is on developing and applying standards of performance. A case history is offered showing one way to apply standards, going into detail as to procedures and forms. Summarization of benefits obtained from this approach is reported.



Special Emphasis on Electronics

A series of panel discussions on practical electronics applications supplements the Seminars. Titles include:

APPROACH TO THE 'AUTOMATIC OFFICE'

PREPARING STUDENTS FOR THE
'AUTOMATIC OFFICE'

PLANNING FOR THE 'AUTOMATIC OFFICE'

PREPARING FOR ELECTRONIC DATA-PROCESSING

APPLYING ELECTRONIC MACHINES TO AN
INVENTORY PROBLEM — A CASE HISTORY

ELECTRIC ACCOUNTING MACHINE
DEVELOPMENTS



List of subjects covered in Seminars

1. Orientation in Electronics
2. Initiating an Electronics Program
3. Utilization of Present Electronic Equipment
4. Records Management
5. Work Measurement
6. Quality Control in the Office
7. Forms Design and Control
8. Practical Work Simplification
9. Systems and Procedures Functions
10. Communications
11. Office Layout and Design
12. Operations Research
13. Inventory Mechanization

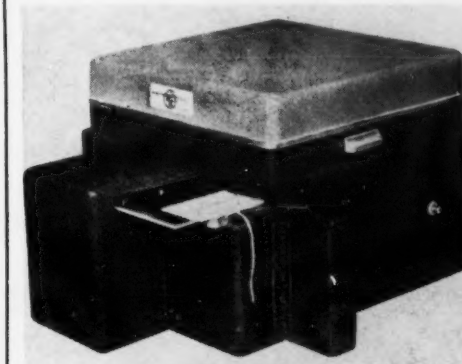
work as sorting tags and writing out sales slips to an electronic machine.

A new high-speed unit control system, which eliminates these costly manual operations, has been successfully demonstrated in several large department stores.

The unit automatically transmits information from pre-punched sales tags onto special paper tape. From this tape, sales unit control reports are made.

There are three typewriter-size machines: a tag reader, a keyboard unit with cash drawer, and a tape perforator. Merchandise is pre-marked with a price tag containing the necessary control information.

This is how it works. The sales clerk inserts the price tag into the reader



Sales tags are automatically read into a paper tape by the "point of sale" reader—at the time of sale. Each item appearing on the tag is punched into the tape, affording complete protection.

when a sale is made. The remainder is automatic. The tag is read electronically and converted into punch tape. At the keyboard, the sales person enters facts and figures while the first transaction is going on. A complete record is made of every sale. Special entries such as refunds, sales taxes, and clerk numbers are also converted in the punch tape.

The third machine, the tape perforator, automatically converts the punched tape into accurate unit control reports. According to the company, a complete sales analysis can be made from the recorder tape with any standard punched card tabulating system. It may also be used as a mobile unit and wheeled to merchandise racks to take physical inventory and to read the price tags.

For more information, circle number 675 on the Reader Service Card.

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(Circle 610 for more information)

How to eliminate "alibi paper"

by Leslie Matthies
Systems and Procedures Supervisor, Northrop Aircraft Corp.

In the course of a major paper work survey, we inquired into the true objectives of each of over a hundred forms. About 65% of the forms carried authority to take action—to buy, to transfer goods, to build parts; these we classified as "action forms." Slightly less than 20% fell into the "record forms" category—they merely recorded the passage of the action forms. About 6% of the total were classified as "report forms." Their prime function was to tell what *had* happened. One *got* action, the other *recorded* the action, while the third *reported* on an accumulation of action.

During our analysis, a fourth category of paper appeared which did not get, record, or report action. The only reason for the existence of this paper was to prove that "somebody did or didn't do something." It helped a man "pass the buck." We called this category "alibi paper."

We traced back the origins of several of these unproductive forms and found that in one case, the existence of such paper was due to the man one-echelon-up. A year before he had asked for information in a category not normally reflected by the records. This particular alibi paper function cost the company \$385 a year. When we contacted the man, he was surprised and didn't realize the record was being kept on a continuing basis. He couldn't even remember why he needed it. The reduction of clerical time over a year saved \$385; the cost of the alibi form amounted to only a few dollars.

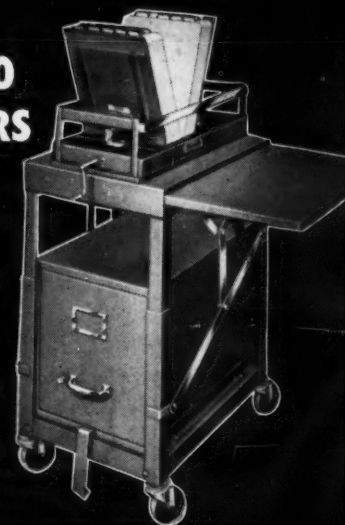
Another alibi form was a log kept by a department that was the "middleman" in a paper flow function involving two other departments. When management inquired into the cause of delays, the supervisor used his alibi records to parry the thrusts of the other two departments in their efforts at shirking responsibility. Sometimes, clerks instigated alibi paper because they wanted "to control" things. In this survey, 9% of the individual forms were primarily "alibi paper!"

An examination of present forms can result in substantial clerical time savings. Before instituting a proposed new form, determine whether it authorizes action, records action, or reports on action. If it doesn't meet one of these criteria, it probably is an excess, unnecessary form. m/m

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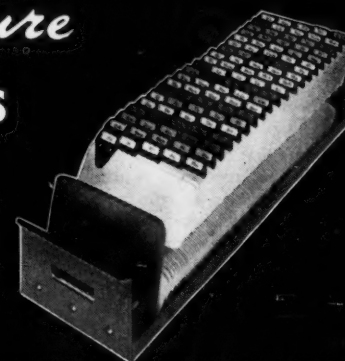
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binders —
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Stands, Record Handling and
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CORPORATION
CEDAR RAPIDS, IOWA

(Circle 632 for more information)

FIRE

insurance is not quite enough

Preventive maintenance is the best answer

by Arthur C. Schrier, Vice President, E. J. Brach & Sons, Chicago

Several years ago, our company (which manufactures candy) experienced a serious dust explosion and fire which closed down our plant for some time. This disaster occurred in the midst of our busiest season—prior to the Christmas holidays.

We were adequately insured against both fire and business interruption. But there were after-effects of the fire for which we could not be compensated. Since the fire happened during the company's pre-Xmas rush, many customers, who could not wait six months or even less for stock, were lost to other manufacturers. We were unable to fill orders and naturally customers could not be expected to suspend operations due to their major supplier's inability to continue production at that time.

Valuable and not-readily-available machinery was damaged and destroyed, and our competitive position was impaired while concentrating on rebuilding. Other problems also impeded the progress of re-establishing our former business levels. Though not true in our case, quite often, cash reserves are depleted to cover costs in excess of the amount received from insurance. Skilled employees who seek work elsewhere during the closed-down period are very difficult to replace.

Loss of competitive position

You may feel that you have an adequate insurance program with fire insurance, boiler insurance, compensation insurance, and use and occupancy insurance, which may include a period of pay for your employees. But remember that they do not keep your cus-

tomers or your basic work force intact. Neither can insurance replace the valuable records which you have accumulated during the years of your existence, and I can assure you that they will be missed in after years.

After getting our plant operations back to normal, we found that our position in the industry had suffered, and there was a long struggle before we regained our former status as one of the leading candy manufacturers. Surveys show that more than 43% of firms who suffer a serious fire (loss of records) are forced out of business.

We have always been fire and safety conscious, but this disaster impressed upon us the importance of constant vigilance. We have designed and installed the best protection available to prevent dust explosions and, failing in this, to minimize the possibility of damage. Our fire protection equip-

ment, always adequate, has been improved by the addition of automatic fire detection equipment and a sprinkler annunciator system.

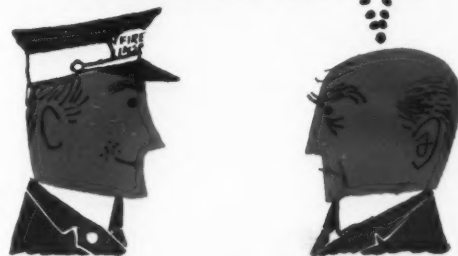
Outside experts can help

Most managements have a persecution complex every time an inspector comes into their plant. This comes from the basic feeling of being interfered with and also that the inspector's recommendations are unreasonable and will cost money. *Money spent in fire protection returns dividends.* Codes developed for fire prevention are not political whims or fancies. They are the result of scientific observation or experience and are based on a record of causes of past disasters.

Management can quickly become educated by consulting with its local fire prevention bureau and acquainting itself with the bureau's rules and codes. Have your neighborhood fire chief inspect your plant. Give him a plot of your plant and property so that the local fire department will know where your hydrants and sprinkler hook-ons are. In case of a fire in your plant, there will be no time wasted.

Retain a good Fire Protection Engineer on a consultant basis. Give him the time to bring you up-to-date on basic fire prevention. Let him inspect your plant and follow his advice in correcting hazardous conditions. If you are planning additions or alterations to your plant, give him a chance to review them and make suggestions.

Management should educate its supervisory personnel in the causes of fire. Demonstrate the use of the various fire extinguishers to be used for



Most managements have a persecution complex each time an inspector comes into their plant.

NOW!

Quickly, Easily, Effectively Destroy confidential papers, records in your own office!

NEW SHREDMASTER

Bantam 10

portable shredding machine designed especially for office use! Quiet, compact, streamlined!

Never before an office shredding machine combining the speed and economy of the new SHREDMASTER BANTAM 10. Anyone can operate it. No fuss, no trouble! Greater cutting width, speed, capacity, and power than ever before! Safety throat! Smart functional design, about size and weight of business typewriter.

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A Division of Self Winding Clock Company, Inc.

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Priceless Security at Low Cost

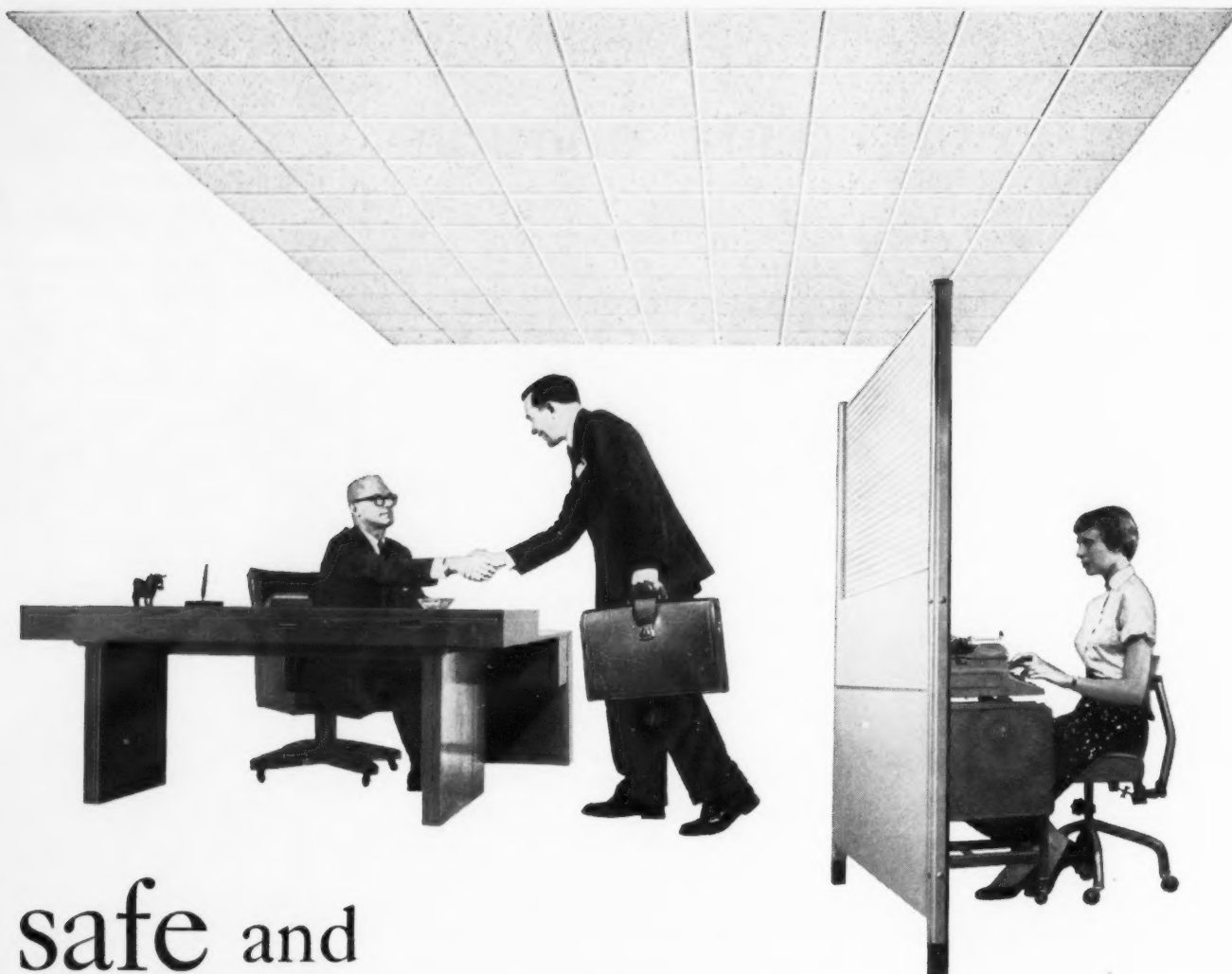
A new type of office machine, the Shredmaster Bantam 10 portable shredding machine, quickly and effectively destroys confidential office records and correspondence. You eliminate danger of vital papers falling into hands of unauthorized individuals.

What makes the Shredmaster Bantam 10 ideal for office usage is that it is attractive in appearance, quiet, compact, and streamlined. It plugs in just like an electric typewriter or adding machine, and is immediately ready to operate.

Made by The Shredmaster Corporation, known throughout the world as the leading manufacturers of shredding machines, the Shredmaster Bantam 10 can be operated by clerks, stenographers, or other office help.

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(Circle 658 for more information)



safe and sound way to get extra efficiency

Fiberglas Acoustical Ceilings absorb up to 75% of noise

Office racket strikes a heavy blow at efficiency. Noise increases mistakes and absenteeism, tires out workers . . . lowers production output, concentration and morale. But ceilings of Fiberglas* Sound Control Products absorb up to 75% of this nerve-racking noise! They pay off handsomely in greater accuracy, lower turnover, higher output and morale.

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Fiberglas Sound Control Products give you.

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strictest building code requirements.

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You'll want to know more about upping efficiency through effective sound control. Write for your free copy of our new idea-filled booklet, "The Ceiling that Cuts Overhead."

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(Circle 647 for more information)

each type of fire. A basic plant fire department should be organized with someone in charge who has had some experience in fighting fires—possibly someone who is on a voluntary fire department. One of your supervisors, perhaps from your maintenance department, should be sent to your local fire fighting school for some basic training.

A checklist for prevention

Management can push for fire safety by providing what I call fire preventive maintenance. This is a regular periodic check of the many safety devices built in the plant to protect it and the people. A few of these are:

1. Replace the fluid in fire extinguishers regularly.

2. Inspect fire doors regularly to see that they operate freely.

3. Test your fire hoses periodically to see if they will stand the water pressure; if not, replace them.

4. Place extinguishers and fire hoses in locations that are easily accessible. When you change the layout of a department, be sure that you change the location of your extinguishers so that they remain on aisle and are not behind a pile of stock.

5. Require periodic checking of explosion vents and catches on explosion type windows, so that they work freely.

6. Test fire pumps regularly.

7. Check your plant at least once a year to see if you have adequate hand equipment that is properly located.

8. Check safety devices on all gas or oil-fired equipment.

9. Require inspection of safety devices and piping on pressure equipment. Many plants use hydraulic presses and most of this equipment uses oil as the pressure medium. If a pipe should break, oil can spurt across a room, and if the oil should come into contact with a hot surface, a serious fire could result.

10. Provide doors in your duct work and be sure to have the ducts cleaned on a scheduled interval.

11. Inspect your fire escapes to be sure that all the treads are firm and that the hinged portion works freely.

12. Inspect your sprinkler tank and its foundation. m/m

methods

work center

"... men and machines don't work in a vacuum. Though you may saturate your Work Stations with skilled workers and modern tools, they can produce efficiently only when 'community' factors like traffic control, and adequate lighting, and proper communications — and even creature comforts — are properly integrated."

"integrated office

best place to work award | honorable mention

Expert handling has converted inside, windowless space into a cheerful employee lunch and lounge area. Commercial Solvents is located on the ninth floor of a large New York City building. The layout of the offices dictated the use of inside space as the logical location for employee rest facilities.

The room is designed to accommodate those employees who bring their own lunch, and want only soup and coffee and desserts, as well as those who want a catered hot lunch plate. Seating capacity for 40 people is provided in slightly less than 600 square feet.

Because there are no windows, one

wall has been given a false "picture window" treatment. It is illuminated from the back, with light filtering through artificial ivy. Another wall is draped in fabric, the third is painted plaster, and the last is of white, glazed, facing brick. Supplemented by flush-mounted fluorescent fixtures, with plastic diffuser panels, the result is an informal atmosphere breaking sharply from the decor of business areas.

Adjoining kitchen and restrooms

A kitchen is adjacent to the lunchroom, and is equipped with a "pass-through" which provides "cafeteria" service of hot dishes and desserts. The

best employee lunch/lounge area

Commercial Solvents Corporation

DESIGNER

Kenneth H. Rippen

whole area is directly adjoining to a comfortable powder room and women's restrooms.

The floor is of rubber tile which, together with the simple washable furnishings, assures easy maintenance. Air conditioning is part of the central plan.

Good noise control is assured by the acoustically tiled ceiling, the rubber tiled floor, and the fabric treatment on one wall. m/m

Within an area of only 600 square feet, the false "picture window" helps create the feeling of "openness" in this interior space.



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(Circle 606 for more information)



THE MAN
Lawrence D. Bell

THE COMPANY
Bell Aircraft Corp.

THE DESIGNER
Rorimer-Brooks Associates, Inc., in collaboration with The Austin Co.



THE EXECUTIVE SUITE in which Lawrence D. Bell (President of Bell Aircraft Corporation) works, is located on the second floor of the firm's administration building, at the main plant adjacent to the Niagara Falls, New York, airport. The suite includes a re-

where they THE OFFICES OF

ception room, a secretary's office, Mr. Bell's private office, and a summer office. The over-all space requirement is 1178 square feet.

Except for the desk, the private office is much like a study in the home of an active and traveled man. By



methods

work

S U C C E S S F U L M E N



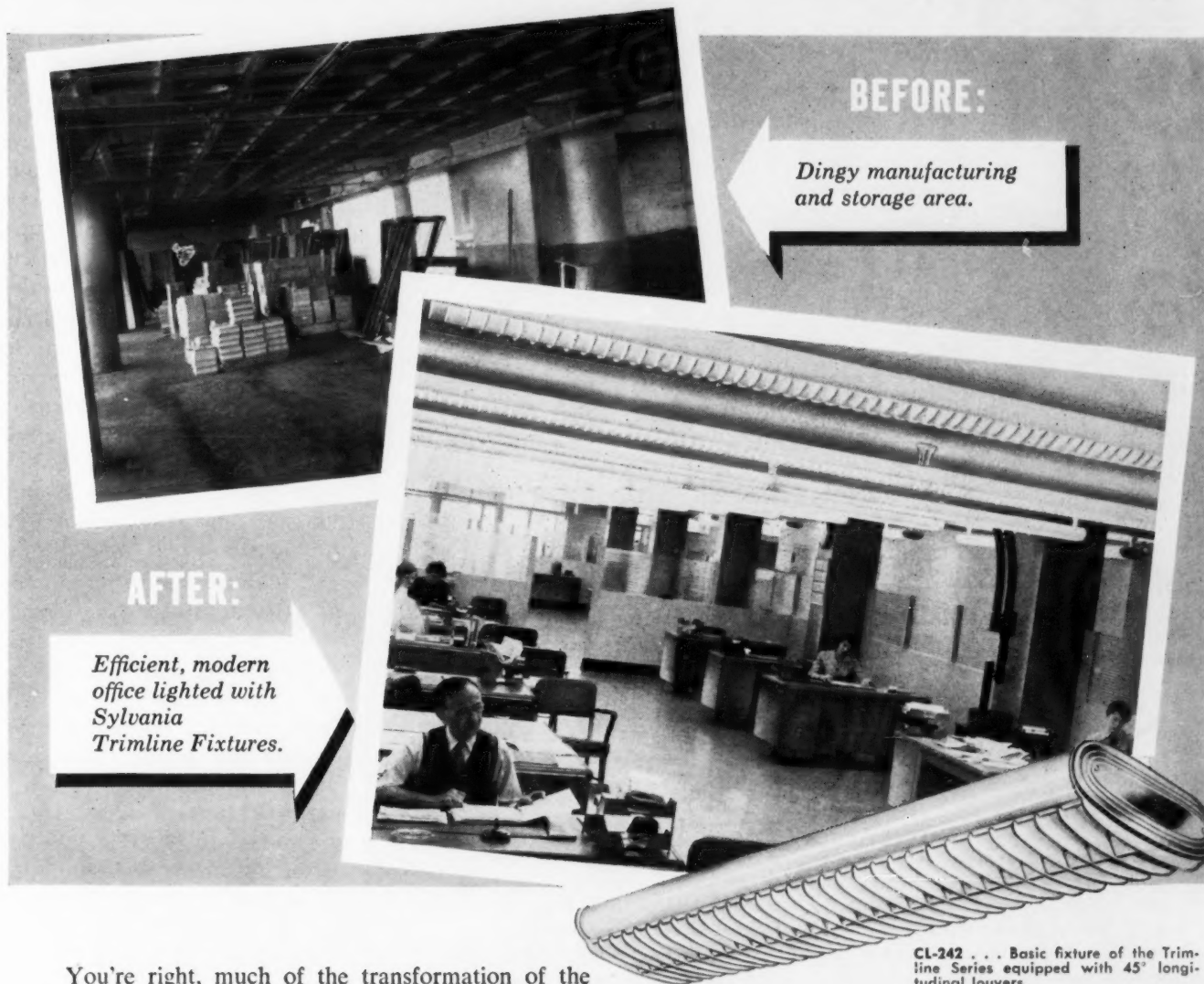
choosing low key colors, what might have become a busy and distracting background, has been kept under control. The desk is custom-made, and a modification of the increasingly popular "L" design. The desk overhang provides conference facilities for a small group by drawing up side chairs.

Tufted carpeting throughout the suite is in pale green and beige, except in the summer office. Here, the floor is ceramic tiled. Paneling on the walls is straight oak-grained laid in a checker-board pattern. The private office is 24' x 19' and is highlighted decoratively with Far Eastern items, mostly picked up by Mr. Bell in his travels.

The summer office

Mr. Bell's summer office measures 17' x 17'. The large windows have glass louvers. Glare is controlled by match-stick bamboo curtaining. The color scheme is bright—teal blue, coral, and black, with cream-colored tile flooring. The wall has a wallpaper scenic mural faithfully portraying an ancient Korean falcon hunt. m/m

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**plan-
ning
idea**

**Office building
in factory area
purifies its air**

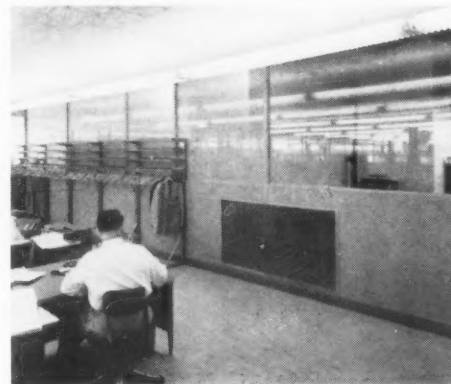
When Libbey Glass' new administrative building was being planned, it was recognized that a severe house-keeping problem would exist, since the building was to be located within 500 yards of eleven giant chimneys in the manufacturing area. A complete, new, centralized air conditioning system was planned for the building, but management felt this would not be enough to combat their severe dirt problem.

The firm's Engineering Department suggested electronic air cleaning as the answer, and it was incorporated into the air conditioning system. They chose precipitron air cleaners, which remove over 90% of all air-borne dirt, dust, smoke, and pollen—even particles so small that they cannot be seen by the human eye.

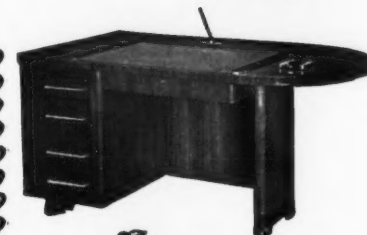
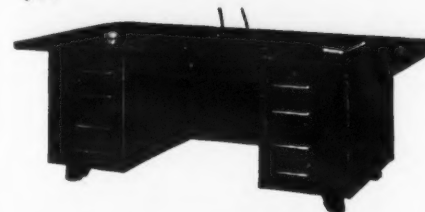
Precipitron operation is based on the theory that "like charges repel and opposite charges attract." Ventilating air to be cleaned passes through an ionizing section, where air-borne dirt particles receive a positive electrical charge. The air then passes through the unit's collector cells, which have a negative electrical charge. Dirt particles are drawn to the plates by electronic attraction, while ventilating air passes on minus its dirt load. Collected dirt is washed from the cells periodically by maintenance personnel.

At Libbey, 20,000 cubic feet of air is cleaned every minute before it passes

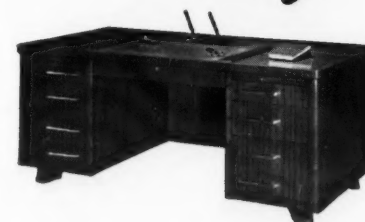
Vent in center of photo is for precipitron air cleaners that are incorporated into the central air conditioning system, at Libbey Glass.



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grouping of handsome, modern
office furniture . . . styled to
lend beauty and luxury to your
office without the sacrifice
of efficiency. See your
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for particulars.

IMPERIAL DESK COMPANY
Evansville 7, Indiana

(Circle 627 for more information)

methods

through the office building's heating and air conditioning system. Maintenance personnel find that dusting chores are cut to a minimum; that decorative paints and drapes keep two to three times longer before needing to be cleaned. Office personnel suffering from air-borne allergies find welcome relief in the super-clean atmosphere. Other workers sensitive to tobacco smoke find that it disappears from the air soon after being exhaled.

For more information, circle number 687 on the Reader Service Card.

plan- ning idea

Private network speeds distant communications

A 5,000-mile, high-speed, private wire, telegraph network speeds the flow of messages between the various offices and plants of the Mathieson Chemical Corporation. The network covers an area of 15 states, and interconnects 31 Mathieson plants and offices in 23 cities throughout the country. Immediate communication to any point on the wire circuit from any other station is possible. The wire system has a capacity of 24,000 words hourly and thousands of messages a month will be transmitted.

Messages are prepared by operators in the form of perforated tape. The tape speeds through an automatic tele-



graph transmitter, at a speed of 65 words a minute. At the destination, the message is received automatically in page form ready for use. The system also transmits orders in tabulated form.

plan- ning idea

Furniture rests aid in floor maintenance

The problem of indentation of resilient flooring and the scratching of

**This Art Metal 55"
desk does everything
a 60" desk will do**



● The Art Metal 55" desk is offered in 12 models, 55" x 30" (height 29" or 30½" as desired).

*... and saves up to \$18 in office
rent per employee, every year*

The 55" desk has been saving 3.75 square feet of floor area per office employee, as compared with 60" x 34" desks, ever since it was first introduced as part of Art Metal's office equipment and planning services, 18 years ago. With rentals as high as \$5 per square foot, this represents up to \$18 less rental per worker, a saving that repeats itself each year for as long as the desk remains in service.

Far from sacrificing efficiency in office work, this "found" space very often permits improved arrangements of the flow of work, with a consequent speed-up in output and a lowering of office costs.

Side drawers are full width and knee space is ample. Available in general office clerical, typewriter and secretarial models, the Art Metal 55" desk is an integral part of a line that includes all sizes and offers the widest selection of executive and general office desks ever developed.

When you plan to move, expand, or re-arrange your offices, why not take advantage of these 55" x 30" desks and the office planning experience that originated them? Call your local Art Metal representative, or write Art Metal Construction Company, Jamestown 4, N. Y.

SEND FOR these Art Metal publications, nationally recognized for their value in planning efficient offices.

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- ☐ "When You Move or Re-arrange Your Office"
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OF THIS UNIVERSITY
ALWAYS EFFICIENT, ALWAYS ADAPTABLE
TO CHANGES IN NEEDS**

Conference Room, Emory University, Atlanta, Ga.
Robert & Co. Associates, Architects, Barge-Thompson Co., Builders.

● The walls throughout Emory University's new research laboratory building are Mills Walls—as distinctive and attractive as walls can be. But when Emory's space requirements change these walls can be rearranged to fit new layouts quickly, easily and at very low cost—without dust, debris, commotion or interruption of normal space usage. They are fully insulated and soundproofed and provide for easy installation of wiring for light, phone and air conditioning controls. Available in a wide range of soft modern colors, their baked-on enamel finishes require no maintenance other than occasional washing.

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MILLS

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METAL WALLS



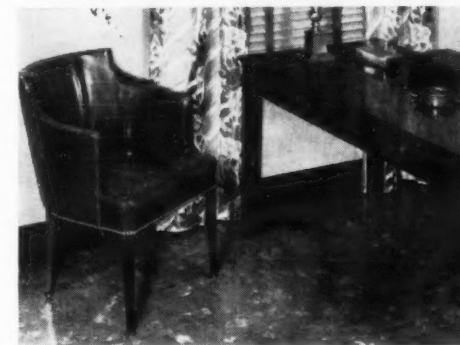
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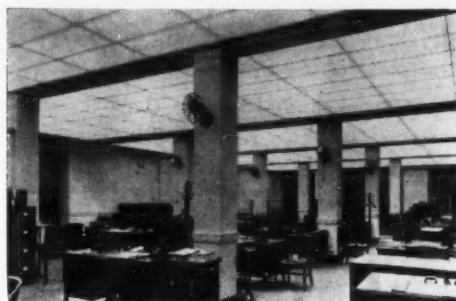
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(Circle 613 for more information)

november 1954



ABOVE: Before installation, beams and pipes cluttered the overhead and created an uncomfortable visual effect. BELOW: New illumination creates an impression of added width to the offices.



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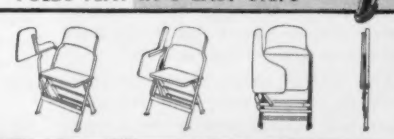
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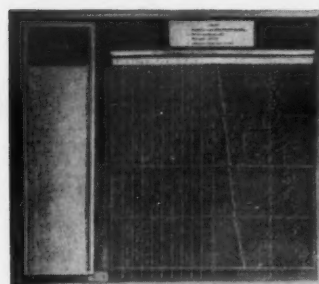
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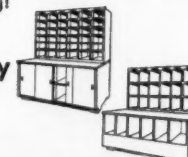
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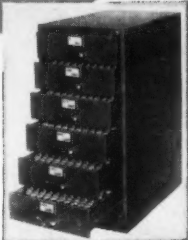
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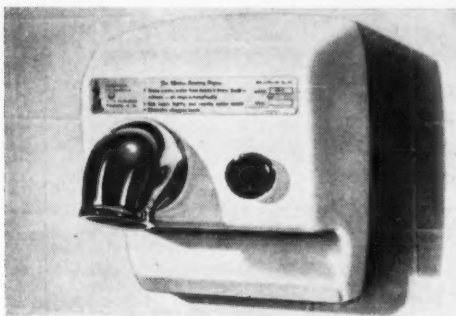
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november 1954

Electric ozone hand dryer saves washroom costs

A new automatic hand dryer and deodorizer is said to save up to 95% on washroom supplies and maintenance. It cuts towel costs, storage space, cabinet-filling time, and clean-up time. It also eliminates the fire hazard of towel-littered floors and takes the place of costly and ineffective deodorizers.

A touch on the starting button creates a stream of instantly warm air that dries hands completely in just 18 seconds. Both



the fan and the heating element shut off automatically at the end of a 30-second cycle. An ozone system is an integral part of the dryer. It destroys all objectionable odors with ultraviolet rays and functions continuously at negligible cost. The unit is made for wall mounting.

For more information, write to Huntington Laboratories, Inc., Huntington, Indiana; or circle number 690 on the Reader Service Card.

Automatic control mechanism operates industrial doors

A new, compact, pneumatic door operator and control mechanism can be easily installed without expensive alterations.

The new unit has been developed as a means of providing greater savings in material handling, faster circulation of material and personnel through the plant, elimination of door and handling damage, improved sanitation control, reduction of heating and air conditioning costs, and more efficient fire door protection.

Of simple design and furnished completely pre-piped, pre-wired, and mounted on a base plate for fast, easy installation, the new control is engineered to solve individual door problems. It is claimed to be the lowest-priced entirely automatic door operator with built-in safety features. These safety features include manual operation in event of power failure, with no rods or springs to disconnect, and completely pneumatic operator and controls

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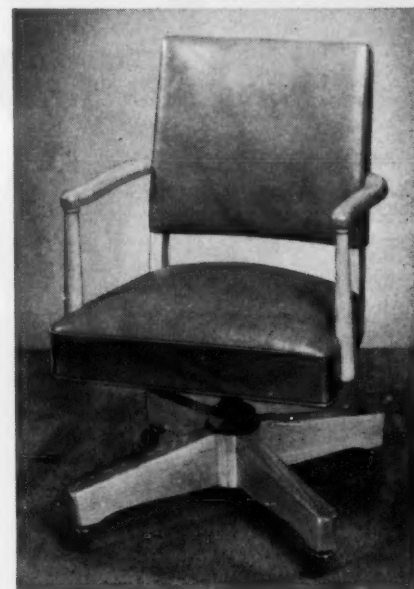
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(Circle 674 for more information)



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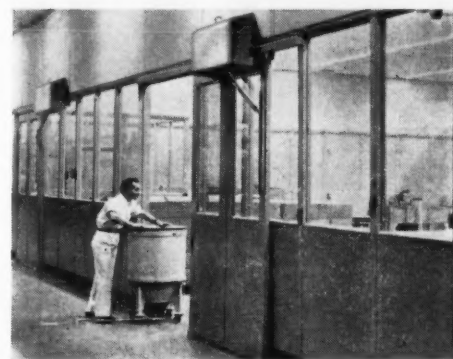
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which eliminate the risk of electrical connections in hazardous areas.

Other features include complete control of the door at all times (which cushions both the opening and closing action and



prevents slamming), a self-lubricating engine, and a choice of automatic or semi-automatic controls.

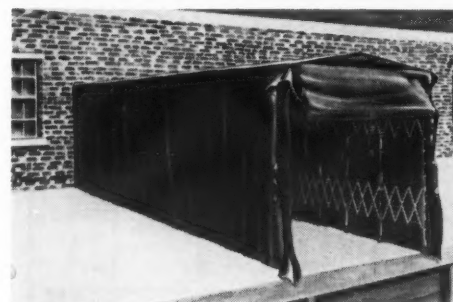
The unit can be activated automatically by treadle or photo-electric controls, or semi-automatically by pushing a button, stepping on a switch, pressing a panel, or pulling a cord. These semi-automatic controls are available in either electric or pneumatic models.

For more information, write to National Pneumatic Company, Dept. EC, 125 Amory Street, Boston, Mass.; or circle number 685 on the Reader Service Card.

Portable loading dock roof saves construction costs

A new model folding roof was designed for use on extra-deep loading docks, or can be used to connect adjoining plants—efficiently and economically. Rolling on special wheels, it folds out from the shipping room door across open docks to trucks or box cars. When not in use, the dock roof folds compactly back around the shipping room door.

The manufacturer points out that while there is an obvious need for these units in existing plants, future plant designers could save a good deal of money by using them instead of more costly loading dock roofs. They are completely portable and



methods

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november 1954

can be moved from door to door. They are available in any size.

For more information write to Atlas Industries, Inc., 1300 West Washington Blvd., Chicago, Ill.; or circle number 677 on the Reader Service Card.

Quality control program facilitated by radioisotopes

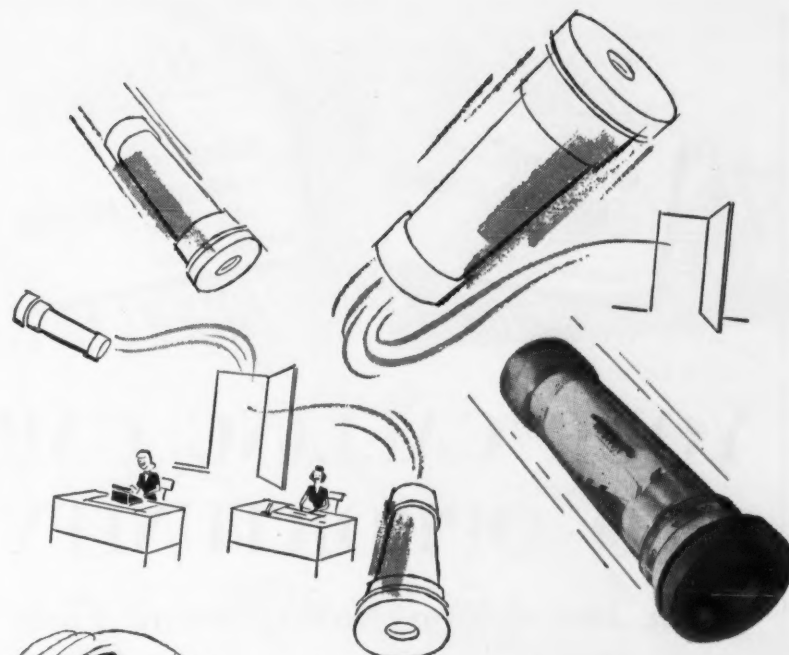
A new, low-cost system utilizes radioactive isotopes to produce X-ray-type pictures of heavy industrial products. The machine's radioactive rays pass through a dense article and strike against photographic emulsions in holders behind the test object. The film, when developed, reveals a shadow picture of the specimen and its internal structure.

The units, in addition to the standard type of radiographic exposure, are adaptable to four other techniques of radiography—protruded source, panoramic, penstock, and stereo techniques. The machine (unlike X-ray apparatus, it does not require huge amounts of lead insulation) is supplied with five Curies of Cobalt⁶⁰, equivalent to about 7,500 milligrams of radium. Current price of that amount of



radium is approximately \$150,000. In contrast, the gamma rays machine's Cobalt⁶⁰ annual replacement requirements can be purchased for about \$75. The machine costs as little as \$1,750 and is fully portable. The machine's cost compares to an expenditure of about \$100,000 required to purchase a two-million volt X-ray machine capable of producing the same type of radiographic pictures.

For more information, write to Gamma Industries, Inc., Baton Rouge, Louisiana; or circle number 686 on the Reader Service Card.



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by Edward N. Hay, President
Edward N. Hay & Associates, Inc., Management Consultants

An answer to white-collar unionization

Management can take a positive approach by instituting an employee education program to "talk up" company benefits

Many managements are seriously debating the advisability of telling "white-collar" people about their policies and practices with respect to salaries.

For example, there's a certain company which right now is faced with considerable union pressure to organize its white-collar workers in a number of locations. This company has gone to great lengths to ensure that its salaried people shall be fairly paid. In fact, it is generally known as a "high pay company," with salary levels equal to, or above those, of competitors and other companies in its communities. Yet, the union organizers are making headway and officers of the company, therefore, are greatly concerned.

Here is a well-managed company with the best of intentions toward its salaried people. It has a sound pay program and provides many marginal benefits. Nevertheless, it proves highly vulnerable to union attack, and the attack is based largely on its pay.

This anomaly—a good pay program

and employee dissatisfaction existing side by side—emphasizes that it's not so much a company's pay scale which makes it vulnerable, as it is the employee's lack of reliable information from management about the program.

When your people don't know the whole "story," they are easily victimized by part-truths, misrepresentations, and sometimes by the deliberate intent of interested parties to deceive them. When they're not fully informed on a matter of as much concern as their pay, it is comparatively easy for organizers to cultivate the seeds of dissatisfaction, unrest, and antagonism. The danger is that, by the time company officers become aware of what's going on, it may be too late to do much about it.

Surveys show employee attitudes

Several years ago, the National Industrial Conference Board issued two reports: "Employee Salary Plans in Operation" and "White-Collar Unionization." The latter starts out with the

WHAT SALARIED PEOPLE WILL WANT TO KNOW ABOUT A NEW SALARY PLAN

How will the new plan eliminate salary inequities?

How will jobs be rated accurately?

Will employees be "in" on the program from start to finish?

Will employees have a better perspective on their job duties and their job security?

How will this make for greater efficiency throughout the company?

How will the individual be better off under the new plan?

methods

statement, attributed to a union leader, that the next cycle of unionization would be among the six million white-collar workers. There is no indication of back-tracking on this.

The Board got 3,000 white-collar employees of nine companies to tell what they thought of their companies' salary programs. Sixty-five percent of these employees added comments on the questionnaire and a large majority of the comments were critical of salary.

The lack of understanding of, and the lack of enthusiasm for, systematic plans of salary administration by employees was a major finding. Evidently a good salary administration plan based on accurate job descriptions, fair job gradings, and regular merit ratings is too little. A good plan doesn't sell itself.

Salaried people have many questions on salary plans. If they can be answered satisfactorily in terms which make sense to employees, job evaluation can gain acceptance.

Employee education is vital

Employees in the main office of a large steel company were questioned. The following paragraph concerning this company's salary levels is taken from the report.

"The company deliberately pays salaries somewhat above the community average, wishing to get superior workers. But only 5% of the employees rate their pay above average. . . . It seems clear that the oral statement on salary levels made by the company several years ago needs the support of the repetition and re-emphasis. At this time, the employees do not feel they are doing especially well salarywise."

If a company has taken no determined steps to pay salaried people equitably, to appraise their performance and review salaries systematically, and to give salary increases when earned, it is understandable if officials sometimes feel that the less said about it, the better.

The salary administrator of a large company asks us in a recent letter, "When a company has a fair and equitable salary program—and most progressive firms do have such a program—why shroud it in secrecy? This secrecy is the white-collar union's most formidable weapon, placed in its hands

by management. Management's shortsightedness in this area of employee communication is literally driving the white-collar workers into unionization."

Candor helps keep good relations

There are two frequently stated reasons for not letting salaried employees in on the "secret." The first is that "salary administration is the management's business alone." The second is that to tell them how their jobs are evaluated and assigned to salary brackets, on what basis pay increases are given, and so on, would only make them more "salary conscious"; it might raise questions that they wouldn't have thought of otherwise.

Many company heads feel that the first, rather than being a valid reason, expresses an outmoded attitude which has little place in today's business picture. As for the second, it is unrealistic to think that by failing to bring pay matters out into the open, you can keep intelligent people from speculating, listening to grapevine rumors, and forming their own conclusions.

Companies which have taken their white-collar people into their confidence with respect to salary standards and practices, feel that the advantages of so doing far outweigh any possible disadvantages. They point out that informed people who are treated like adult partners in the business are far less likely to fall for the airy promises and specious reasoning of union organizers. They also say that when salaried people are told frankly what the company's intentions are, and just where they stand in respect to their salaries, their morale is immeasurably improved. Their better feelings toward the management produces better cooperation and teamwork, which is reflected in better results. m/m

"worth

Where are the girls: The current shortage of younger women for secretaries and office workers indicates a critical trend. Although our population has increased more than six million since 1940, today there are one million fewer girls between the ages of 14 and 19. *THE GALLAGHER REPORT.*

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The busier you are with things-to-be-done, appointments, personal and family promises, the more you'll appreciate a DEFIANCE Desk Calendar . . . to do your remembering for you . . . to prevent your forgetting a single commitment of the day. And the more you'll be glad to have a STANDARD Daily Reminder to help you plan ahead, to remember coming events, and to help you recall dates and details of the past. Get

them both today . . . so you won't forget tomorrow!



DEFIANCE and STANDARD
1955 MEMORY HELPS now
at your Stationer and Office
Supply Dealer.

Ask about quantity prices

Dated Diaries • Daily Reminders • Appointment Books • Desk Calendars • Memo Packs

(Circle 698 for more information)

if fire struck
your office tonight
you could have this →

Complete destruction of valuable papers—like those you are now keeping in your desk. Nothing left here but a mass of charred, useless ashes.

unless you have this →
VICTOR FIRE DRAWER

Heavily insulated, the Victor Fire Drawer is tested and *Certified* to protect paper contents from fire for at least one hour in severe heat reaching 1700° F.

Many important letters, records and other vital papers cannot be replaced. Their protection from fire is essential to you, your office, your business. The Victor Fire Drawer provides this protection—"certified protection" *right at your side*. Protect your "in work" papers all night, all day with a Victor Fire Drawer.

For full information, write today to:



VICTOR SAFE & EQUIPMENT

Remington Rand
DEALER SALES DIVISION

315 FOURTH AVENUE • NEW YORK 10, N.Y.

(Circle 664 for more information)



You can't win!

With an inaccurate mailing scale, you frequently overpay postage, wasting money...or underpay, resulting in "postage dues" and loss of customer good will. Even in a small office, the overpayment of 3¢ postage on just a dozen letters a day may waste nearly \$100 a year!

A PB precision mailing scale has an automatic pendulum action, fast and accurate...with a big hairline indicator and wide-spaced markings, easy to read...and saves time as well as postage in mailing!

PB scales pay their way in any office. Models for all kinds of mail, including parcel post up to 70 lbs. Ask the nearest PB office to demonstrate. Or write for the free illustrated booklet.

FREE: Handy chart of Postal Rates with parcel post map and zone finder.

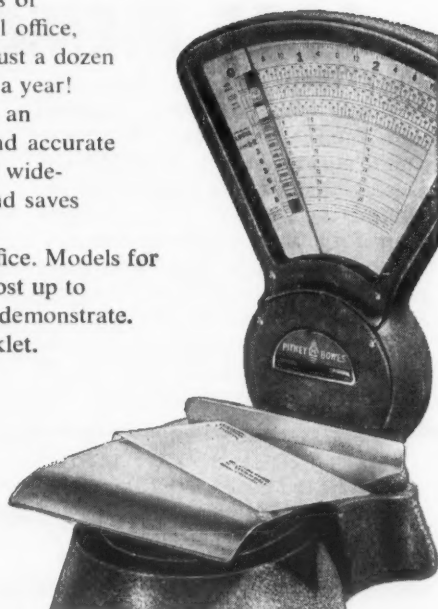


PITNEY-BOWES
Mailing Scales

PITNEY-BOWES, INC.
4562 Pacific St., Stamford, Conn.

Originators of the postage meter
...offices in 93 cities

(Circle 653 for more information)



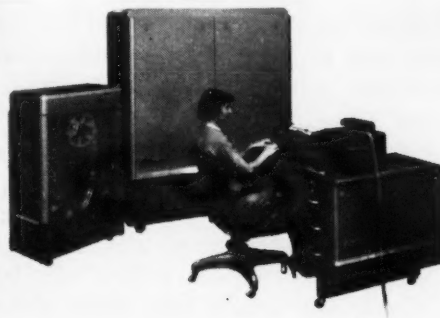
clippings

NEW PRODUCTS IN THE EDITOR'S MAIL

New low-cost general purpose computer

A low-cost, easy to operate, general purpose electronic data processing machine has the ability to accept data from an electric typewriter, punched paper tape, magnetic tape or punched cards. All data is entered into the machine, operated on, and printed out, in decimal form.

Available accessories include a paper tape reader capable of reading 200 characters per second and a paper tape



punch with a punching speed of 60 characters per second. These devices greatly reduce machine filling time and problem change-over time, thereby reducing the cost of operations involving the input and output of large amounts of data.

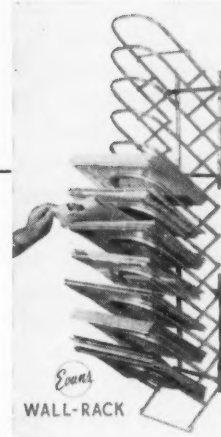
For more information, write to The National Cash Register Company, Electronics Division, 3348 W. El Segundo Blvd., Hawthorne, Calif., or circle number 692 on the Reader Service Card.

New rotary card file speeds record handling

A new multiple rotary card file that enables a clerk to find any one of 80,000 or more record cards in seconds, can be worked by as many as *three clerks simultaneously*. The manufacturer claims that it is the only motorized volume card file



Now—
Use
Your
Wasted



WALL-SPACE

● This ingenious Wall Rack takes papers off crowded desks—and puts them on the wall within reach of everyone. Use in any office to hold books or papers frequently referred to. Indispensable in Mailing Room for assembling incoming, outgoing or inter-office mail. Also ideal as display for merchandise, or advertising literature.

● All aluminum, Evans WALL RACK fastens securely to an otherwise unused wall. Light weight, yet durable, holds over 40 lbs. Comes complete with double hanging frame and drive nails.

6-Section size.....\$11.00
12-Section size..... 18.50

● Made by Makers of the Famous Evans GATHERING RACKS

See Your Dealer or Write:

Evans Specialty Co., Inc.
421 N. Munford St., Richmond 20, Va.

(Circle 619 for more information)

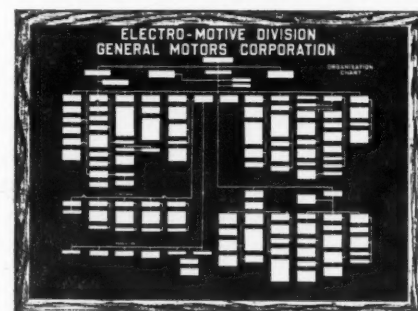
STOP COSTLY RE-DRAFTING OF ORGANIZATION CHARTS

THE
COFFIELD
EVERLASTING
Interchangeable
ORGANIZATION
CHART



EASY TO CHANGE

A typist, a typewriter and typing paper are all you need to keep your chart up to date. It's that simple.



- Sizes to Fit Any Organization Structure
- Eliminates All Costly Drafting
- Photographs for Sharp Prints
- Invaluable as a Visual Training Aid
- All Parts Are Movable and Re-usable
- Solves Your Chart Problem Forever

Write for Free Illustrated Folder
with Price Schedule No. M-11.

MANAGEMENT CONTROL CHARTS CO.
1731 N. WELLS ST. CHICAGO 14, ILL.

(Circle 696 for more information)

methods

RECORD STORAGE a problem?

Solve it with—

- Low-Cost
- Convenient
- Space-saving

STAXONSTEEL
REG. U.S. PAT. OFF.
TRANSFER FILES

The only fibre-board
DRAWER FILE
that "builds its own steel framework as you stack it".

• STAXONSTEEL gives you easy-action drawers—quick access to records. Each corrugated fibre-board unit is complete with factory applied steel framework for sturdy support in rear and front. Interlock side-by-side and stack to the ceiling to save space. Letter size illustrated—\$4.70 per unit, slightly higher south and west.

Clip this ad to your letterhead
FOR FREE BOOKLET

- 1 Tells how long to keep records
- 2 Shows best record storage methods . . . plus name of your nearest dealer.

BANKERS BOX COMPANY
720 S. Dearborn Street • Chicago 5, Ill.
(Circle 607 for more information)

CHART-PAK FOR OFFICE LAYOUT

... because it's easier
to move a template
instead of a desk

Do it right the first time. Use Chart-Pak professionally designed templates for office layout. Perfect for fitting more people into same space, or planning more effective work flow. Test the layout before changing the office.

Here's how the method works. In each Chart-Pak Office Layout Kit there are supplies of self-adhering templates (1/4" scale)—which represents all the standard units of office equipment and structural components. The templates are placed in position (they stick with a touch of the finger), and are relocated merely by picking them up.

For more information on Chart-Pak Office Layout Kits or on other charting material send coupon in today.

CHART-PAK, INC.
100 Lincoln Ave. • Stamford, Conn. • Dept. 94J

☐ Please send me Kit at \$12.50. Check enclosed.
☐ Send information on Office Layout Kits.

Name _____
Company _____
Address _____
City _____ State _____

(Circle 612 for more information)

which can be operated in this way.

The file contains a battery of from eight to 12 independently operated drums which can be worked independently by three clerks. Even if one clerk is already operating the file, there is from 7/8ths to 11/12ths of the file that is accessible to other clerks.

For more information, write to Mosler Safe Company, 320 Fifth Avenue, New York, N. Y.; or circle number 680 on the Reader Service Card.

New card file accommodates business cards

A new quick-reference file is designed to increase personal efficiency by eliminating endless searchings for misplaced, important business cards in desk drawers.



It is a compact cardboard miniature business card cabinet, complete with an alphabetical index. It holds 500 cards.

For more information, write to The Vail Company, P. O. Box 368, Woodland Hills 40, California; or circle number 693 on the Reader Service Card.

Instrument aids industry to check against air pollution

To aid in compliance with the smoke control laws, a new instrument has been developed to determine whether fuel is being properly burned, and to serve as a detector of air pollution. Experts in the field say it is an improvement over the old "smoke chart" method.

For more information, write to Mine Safety Appliances Company, Braddock, Thomas and Meade Streets, Pittsburgh, Pa.; or circle number 634 on the Reader Service Card.



*Everybody will see
the Difference—immediately*

vVx is *visible*. U.S.E.'s improved synthetic-type seal flap gum has the natural sheen and color which people have learned to look for. They know immediately that there's gum on the flap.

And they find these additional advantages: vVx lies flat; does not curl, and has high resistance to humidity and blocking. It provides instant tack with normal moisture, and makes a positive, permanent seal. It has the U.S.E. neutral taste.

vVx is a product of U.S.E.'s Envelope Research Laboratories, and is now provided on all stock commercial and official sizes of White Waves and Bonds.

Enjoy the many advantages of vVx SEAL FLAP GUM — you'll see the difference *immediately*.

New Home of the famous U.S.E. Research and Processing Laboratory at Metuchen, New Jersey, where scientific quality control gives life to the U.S.E. Guarantee.

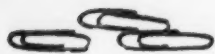
* T.M. Reg. Appld. For



**UNITED STATES
ENVELOPE COMPANY**

Springfield 2, Massachusetts
15 DIVISIONS FROM COAST TO COAST

(Circle 663 for more information)



New office machine stand aids in operator's comfort

A new comfortized "sit down" machine stand is designed especially for electric duplicators. It features desk-type construction, and allows operators to either sit or stand while working.

The stand solidly supports all office machines and portable collators. Since operators sit with their legs under the table tops, as at any other desk, the added comfort results in far greater work efficiency from office personnel. Detachable right- and left-hand receiving trays and a left-side pull-out shelf give extra room for handling stacks of paper and files.

For more information, write to Halverson Specialty Sales, 1221 W. Chestnut, Chicago 22, Ill.; or circle number 676 on the Reader Service Card.

new improved PORTABLE PAPER GATHERING MACHINE saves time and expense anywhere...anytime!

► Most companies recognize the fatigue and confusion created by the task of assembling sales bulletins, price lists and other types of duplicated papers into sets. Yet because these operations may be "spread out" through many different departments, it is often difficult to realize that they cause hundreds and thousands of dollars of needless expense.

With this light weight compact Thomas Table-Top Collator, you can put 8 extra helping hands to work anywhere there is a paper assembling job to do. One operator... working easily and comfortably gathers completed sets twice as fast as by old-fashioned hand assembly methods, with verified savings to 50%. And the Table-Top is accurate as well as fast... permits a constant check on every collated set so that blank or misprinted pages don't slip through... so simple that anyone can operate it.

For full obligation-free information, write Dept. D for Folder #104.



FEATURES

- Light weight and compact—occupies only 16" x 27" of desk space.
- 5 and 8-bin models available.
- Tilted bins and patented Ejectomatic feed—assure smooth, dependable operation.
- Hand lever can be located right or left—for operator's maximum convenience.
- No set up time—always ready for use.
- 1-year guarantee—maintenance costs practically non-existent.

Permits collating of both 8½" x 11" and 8½" x 14" sheets.

Thomas Collators

Specialists in Paper Gathering

50 Church St., New York 7, N. Y.



FREE. Write for Collating Demonstration and/or Collating Analysis Sheet... shows you how to save up to 50%. Also available, free bulletins on new Table-Top Model, floor models, and high-speed Tandem.

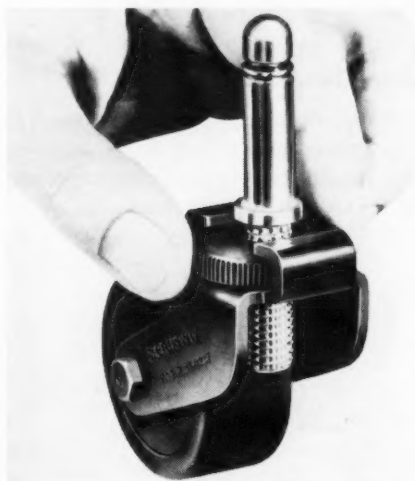
135 SALES AND SERVICE OFFICES FROM COAST TO COAST

(Circle 668 for more information)



Adjustable wheel casters offer controlled support

A new line of wheel casters has been designed especially to compensate for uneven floor surfaces. Each wheel can be leveled and locked by simply turning the adjusting nut. This adjustment makes them slip-proof.



The casters will fit any type of equipment. Available in a wide range of models, the casters can be installed on metal, wood, tubing, or angle iron.

For more information, write to Adjustable Caster Co., 1411 Walnut St., Philadelphia 2, Pa.; or circle number 684 on the Reader Service Card.



Clips on stand hold office machine pads in place

Office workers no longer have to be annoyed by their machines slipping, sliding, or creeping. This stand is equipped with metal clips on the top. You merely clip on the machine pad, put the machine in place, and go to work. The stand is also



Elliott

ADDRESSING MACHINES

offer you the only competition you can find in the Addressing Machine industry. Consult your yellow telephone book or write to The Elliott Addressing Machine Co., 150F Albany St., Cambridge 39, Mass.

(Circle 618 for more information)



PAYCHECK "OUTLOOK" ENVELOPES

Eliminate Time and Expense of Addressing, also chances for Errors.

Paycheck "Outlook" Envelopes are absolutely opaque. Essential when wages are paid by check. Nothing shows but the employee's name. This improves personnel relations.

Send for Samples
and Prices Today



OUTLOOK ENVELOPE CO., Est. 1902

Originators of "Outlook" Envelopes
1001 W. Washington Blvd., Chicago 7, Illinois

(Circle 646 for more information)

methods



RITE-LINE COPYHOLDER

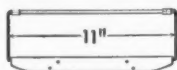
Promotes Accuracy - Increases Production

PRICE INCLUDING
NEW TELESCOPIC
EYEGUIDE

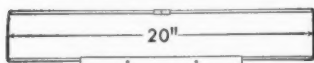
\$17.75
PLUS TAX

TELESCOPIC EYEGUIDE

Accommodates all widths of copy from a machine tape to 20 inches.



EYEGUIDE CONTRACTED



EYEGUIDE EXTENDED

FREE TRIAL OFFER Write, asking us to send you a RITE-LINE Copyholder with the understanding you may return it without charge within ten days.

RITE-LINE CORP. 4209 39th Street, N.W.
Washington 16, D.C.
(Circle 657 for more information)



Oxford PENDAFLEX®
HANGING FOLDERS

Oxford Filing Supply Co., Inc.
88 Clinton Road, Garden City, N. Y.
Please send free PendaFlex catalog to

NAME _____

STREET _____

CITY _____

(Circle 648 for more information)

provided with a power foot pedal so that it can be raised or lowered.

For more information, write to Maso Steel Products, 53 W. Jackson Blvd., Chicago 4, Ill.; or circle number 682 on the Reader Service Card.

Midget ozone unit destroys unpleasant odors

A midget ozone generator, no larger than a small portable radio, can control office odors. It measures only 6" x 5" x 5" and operates on the same simple principle as full-size generators. Despite its small size, the midget unit has ample capacity to freshen air in offices, destroy smoke in conference rooms, and eliminate cooking odors from lunchrooms, by continuously generating enough ozone to oxidize and destroy the causes of airborne organic odors. Housed in a mahogany plastic case, it plugs into any 110-volt, 60-cycle outlet. It operates for about a cent a week, and a convenient single control knob adjusts ozone output.

For more information, write to General Ozone Corporation, 855 West Washington Blvd., Chicago, Ill.; or circle number 638 on the Reader Service Card.



Device frees both hands for writing while telephoning

A new telephone aid braces the receiver against either shoulder, leaving both hands free for writing or other work. Made of black plastic with foam rubber padding, it adjusts automatically to all shoulder widths and slopes. It snaps onto receiver without the use of tools.

For more information, write to American Homecraft Company, 3714 N. Milwaukee Avenue, Chicago, Ill.; or circle number 691 on the Reader Service Card.

New carbon paper makes copies that cannot smudge

Pen or pencil carbon produces non-smudged fresh copies. One of its features is that it can be used over and over again, making clear legible copies every time.

The manufacturer claims that this is the first real improvement in carbon paper for use on register rolls and addressographs.

For more information, write to Mittag & Volger, Inc., 76 Park Ave., Park Ridge, N. J.; or circle number 683 on the Reader Service Card.



Save time now wasted copying...and cut costs!

The time spent in retyping for extra copies, in rewriting forms, in transcribing records is wasted! Because an Ozalid machine makes better copies, faster and cheaper, than any human copyist! And saves errors, proofreading, and revisions as well.

Anything on translucent paper, cloth or film can be copied on sensitized material by an Ozalid machine in a matter of seconds, and in any quantity needed. Ozalid reproduction is instant, without negatives, stencils, developing baths, special inks. Ozalid copies are clear and clean, delivered dry, ready for use. A letter copy takes less than a minute, costs less than two cents.

THOUSANDS of companies use the Ozalid process to reproduce statements, reports, letters, orders, invoices, statements, drawings, hand written notes—and save clerical time, speed communication, get action earlier. In every office, there are scores of uses for an Ozalid machine. And anybody can use one.

Ask the nearest Ozalid distributor (see phone book) to show you. Or write 57 Ozaway, Johnson City, N. Y.

OZALID—A Division of General Aniline & Film Corporation...From Research to Reality.
In Canada, Hughes Owens Company, Ltd., Montreal.

(right) The Bambino, new small copying machine for office use, handles material up to nine inches wide, any length. And saves enough work in even a small office to soon pay for itself.

OZALID
THE Bambino

(Circle 649 for more information)





Break the record barrier...

with the NEW DIEBOLD SUPER ELEVATOR FILE for mass-records

The new Diebold Super Elevator File breaks the record barrier with the same ease that jet planes now break the sonic barrier. Unproductive effort is the barrier that slows operations and increases costs of handling policy, premium, claim and other mass-records. Eliminating wasted effort is the Super Elevator File's specialty. It does the heavy work electrically . . . freeing operators for referring and posting. Operators remain seated . . . the file's electric brain brings any record to their fingertips . . . within 3 seconds . . . at the touch of a button! Short removable trays speed operations, permit instant division of work. The file houses greatest concentrations of records in smallest space . . . up to 300,000 in 17 square feet.

Let us show you how the Diebold Super Elevator File will improve mass-record handling and reduce overall costs. Ask to see case histories that show savings of one-third in time and space . . . savings that make it profitable to replace present equipment with electrically operated Super Elevator Files.



Diebold, Inc.
908 Mulberry Rd., S.E., Canton 2, Ohio

Please send full information about new Super Elevator File for our _____ records.

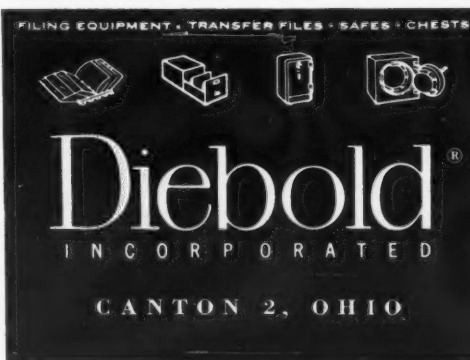
Firm _____

Individual _____ Title _____

Street _____

City _____ Zone _____ State _____

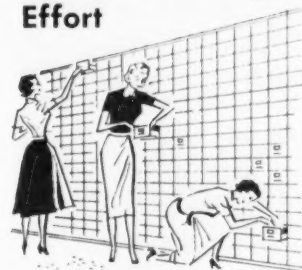
*Serving
American
Business
For Nearly
a Century*



ELIMINATE



Time-Consuming Effort



Walking and Carrying



Fatigue



The Best Offices of the Year
use Diebold equipment for
... handling ... retaining and
protecting records.

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Introducing ... the all-new Burroughs Ten Key adding machine

Now, Burroughs offers you a new standard of operating ease and convenience in ten-key adding-subtracting machines. Light and compact in design yet durably rugged in construction, the Burroughs Ten Key is new all through, with scientifically positioned keyboard and controls ... light-touch quick-action keys ... cushioned-quiet electric operation. See it today and you'll agree—this great new Burroughs is truly the finest ten-key adding machine. The yellow pages of your telephone directory list your nearest Burroughs dealer or Burroughs branch office.

Burroughs Corporation, Detroit 32, Michigan



(Circle 609 for more information)

NOW's the time to MODERNIZE your filing



NEW Remington Rand KOMPAKT FILE "the file with the extra drawer"

Now for the first time since the invention of the vertical file, you can have a desk-height file with 3 letter or legal-size drawers instead of 2 . . . a counter-height file with 4 instead of 3 drawers . . . a 5-drawer file no higher than a 4-drawer unit . . . a 6-drawer file comparable to a 5-drawer!

Too, it means the new KOMPAKT file can save up to 50% of your floor space! And KOMPAKT has smoother operation . . . more modern streamlined appearance . . . greater strength and durability!

Right now, when you're engaged in the annual transfer of files, is an ideal time to consider KOMPAKT . . . *the file with the extra drawer*. Get 10-page folder showing details of savings—Circle Lbv692.

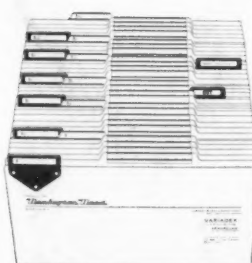
SAVE clerical filing costs with TRIPLE CHECK AUTOMATIC FILING

Triple Check Automatic is a simple indexing system that's faster by far than any other system ever devised. It enables clerks to file and find so much more quickly and easily that you save great amounts of *clerical time*—the biggest single item in your filing costs. Circle Lbv391. Use it in the new KOMPAKT files too.

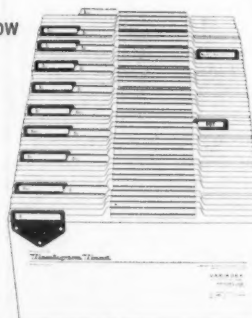
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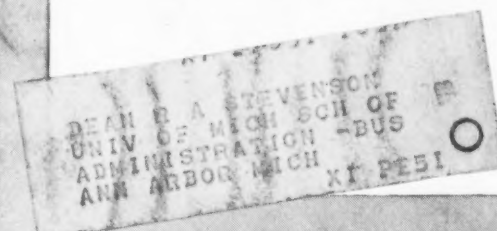
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